



NIGERIAN JOURNAL OF RURAL FINANCE AND ENTREPRENEURSHIP (NJRFE)

**A Journal of the International Centre of Excellence for
Rural Finance and Entrepreneurship (ICERFE)**

Ahmadu Bello University, Zaria Nigeria

Volume 4, Issue 1 (A), June, 2026



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*A Journal of the International Centre of Excellence for Rural Finance and
Entrepreneurship (ICERFE),
Ahmadu Bello University, Zaria, Nigeria*

Volume 4, Issue 1, June, 2026 (A)



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ISSN Print: 2992-3530
ISSN Online: 2992-3549

Published By

International Centre of Excellence for Rural Finance and Entrepreneurship (ICERFE),
Ahmadu Bello University, Zaria, Nigeria

Printed at:

Rhaimzy Publishing Press Zaria
Kaduna State, Nigeria.
Tel.: 08063835463.
E-mail: rhaimzy@yahoo.com



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FACTORS INFLUENCING THE ADOPTION OF AGRICULTURAL INSURANCE AMONG SMALLHOLDER FARMERS IN NIGER AND KADUNA STATES, NIGERIA

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Abstract

Agricultural production activities are faced with a myriad of risks and uncertainties which require insurance as a risk management tool. The research work was carried out to investigate the adoption of agricultural insurance among small holder-farmers in the study area. This was done through examining: the socio-economic characteristics of the respondents; the perception of the respondents towards agricultural insurance; the key factors influencing the uptake of agricultural insurance among smallholder farmer and the constraints affecting the rate of adoption of agricultural insurance among the respondents. A random sampling procedure was adopted to select 240 respondents across Kaduna and Niger states. The data were collected with a well-structured questionnaire. Descriptive statistics and inferential analyses such as regression analysis were employed to analyze the data. The research work revealed that the age of respondent farmers has a majority of (54.2%) of greater than 35 years, 31.3% are between 29-35 years while 14.6% are of under 29 years, majority of the respondents (63.7%) are male while 36.3% are females. majority of the respondents (65.8%) have farms between 1-3 hectares, 30% have farms less than 1 hectare, while the least (1.3%) have more than 6 hectares. The main crops cultivated by the respondents are maize (49.6%), followed by rice (28.3%), soybean (10.4%), and yam (5%). The main source of information on agricultural insurance from the study is from extension agents (31.7%) followed by government programs (20.6%), media (14.3%) and fellow farmers (12.7%). Most of the respondents (50%) understand the benefits of agricultural insurance, 43.8% of the respondents do not understand the benefits while 6.2% somewhat understand the benefits of agricultural insurance. Most respondents (35.4%) had a moderate understanding of agricultural insurance, with few demonstrating a high level of awareness. Furthermore, a majority (75%) had never attended any training or awareness program on agricultural insurance, whereas just 20% had received such exposure. In terms of coverage, 81.75% of the farmers reported not having any agricultural insurance, with only 18.25% currently covered. Regarding the types of insurance accessed, 44% of the respondents were covered under livestock insurance, 40% had crop insurance, and only 4% were enrolled in weather-related insurance schemes. The regression analysis revealed that age, education, and sex significantly influenced agricultural insurance uptake, with older and more educated farmers more likely to adopt, while males were less likely than female. The study concludes that agricultural insurance is significantly underutilized due to low awareness, poor training, and limited accessibility. Improved extension services, targeted awareness campaigns, and more inclusive insurance schemes are recommended to enhance adoption among smallholder farmers.

Keywords: Adoption, Agriculture, Insurance, Smallholder-farmers

Introduction

Agriculture is the livelihood of most of the rural people in Nigeria. About 70% of the rural people are subsistence smallholder farmers that produce about 90% of Nigeria's food on un-irrigated and fragmented land wholly dependent on rainfall (International Fund for Agricultural Development (IFAD), 2015; Bako, et al., 2022). In Nigeria, agriculture is rain –

fed and due to the effects of climate change which causes erratic rainfall and prolong drought, agricultural produce is being affected leading to a decrease in the national value of agricultural production. The weather conditions are highly affecting the agricultural sector and losses of agricultural produce will likely increase in the future as natural disasters become more frequent (Inter-Governmental Panel on Climate Change (IPCC, 2012).

Agriculture is a risky enterprise particularly in developing countries (Akcaoz and Ozkan, 2005). These risks could be unpredictable weather, pests, diseases, price fluctuations, poor infrastructure, and limited access to technology or credit. Most often the effects of these risks are felt by poor vulnerable subsistence farmers in rural communities (Aidoo *et al.*, 2014). Due to risks inherent in agricultural production, the need to encourage farmers to get their farming business insured cannot be over emphasized. Since this will involve paying a certain premium to the insurance company, there is a need to have enough evidence to prove to the farmers the benefits of insurance.

Despite the importance and benefits of insurance as a tool that can reduce the impact of production risk, effects of climate risks are still prevalent among farming households in developing countries. While it is often assumed that fear of loss discourages smallholder farmers from adopting innovations, there is limited localized data showing how agricultural insurance directly influences innovation uptake. There's also insufficient understanding of how demographic variables especially gender and youth influence knowledge, access, and willingness to adopt agricultural insurance schemes. It is based on this premise that this study found it necessary to assess the adoption of agricultural insurance schemes among smallholder farmers in the study area. Specifically, the study seeks to: examine the socio-economic characteristics of the respondents; assess farmers' perceptions toward agricultural insurance; analyze the key factors influencing the adoption of agricultural insurance and identify the major constraints limiting the adoption of agricultural insurance among the respondents.

Literature Review

Agricultural insurance is increasingly viewed as an important risk-management tool to help farmers cope with climate variability, pests, and yield uncertainty. Despite the potential benefits, adoption rates among smallholder farmers remain low in many developing countries, including Nigeria. Therefore, understanding the determinants influencing farmers' decisions to purchase insurance is critical for designing effective interventions. Olajide-Adedamola & Akinbile (2019) in "Inhibitors and Motivators of Adoption of Agricultural Insurance in Nigeria" found that complicated procedures, accessibility issues, and high premium costs were major barriers even among farmers aware of insurance. In many studies, awareness alone is insufficient to join in the insurance scheme as many farmers know of the system, yet do not enroll.

Mustapha *et al.*, (2023) found that factors such as education level, access to weather forecasts, availability of banking services, and previous experience with flooding significantly enhanced the likelihood of agricultural insurance adoption across Nigeria. Key enablers of agricultural insurance adoption include access to extension services, closeness to insurance offices, simplified administrative processes, and trust in claims settlement. Miebi and Ndubuokwu (2022), in their study, identified awareness, premium affordability, farm size, access to credit and cooperative membership as significant factors influencing farmers' participation in insurance schemes.

According to the Organization for Economic Cooperation and Development (OECD, 2020), agriculture is exposed to market, production, institutional, financial, and personnel risks, and effective tools like agricultural insurance are essential to buffer these challenges. Similarly, Huirne et al., (2020) identified three key approaches to sharing agricultural risk with others: insurance, farm financing, and contractual agreements. Among these, insurance plays a crucial role in managing risk by operating on the principle of risk pooling, where losses experienced by a few are compensated from the contributions (premiums) of many, thereby minimizing the financial impact on individual farmers. Agricultural insurance is defined as a contractual business that guarantees financial protection against potentially large loss in return for a premium.

According to the United Nations Office for Disaster Risk Reduction (UNISDR, 2022), agricultural insurance is viewed as a mechanism for stabilizing income, employment, prices, and the supply of agricultural products. It operates through the deliberate and regular accumulation of small premium payments by many participants during favorable periods, creating a fund that can be used to support those who suffer losses during adverse times. Practical experiences indicate that many rural farmers are unable to afford the premiums charged by insurance companies. This is largely due to their low levels of agricultural production and various socioeconomic constraints such as limited income, lack of access to credit, low financial literacy, and competing household needs. These barriers significantly hinder their participation in agricultural insurance schemes, despite the potential benefit. Agricultural insurance can help reduce the vulnerability of farmers to risk and manage production losses, and many countries have introduced insurance programs for farmers as a proactive risk management tool (International Labour Organization, 2023). Agricultural insurance against natural hazards is often publicly supported by the state either in the form of premium subsidies or by creating private public partnerships (Bielza et al., 2009; Abebe and Bogale, 2014).

The role and effectiveness of extension services, media, and farmer associations in shaping perceptions and uptake of agricultural insurance remains underexplored. Mabudu, Antwi, and Oladele (2018) highlights the importance of extension services in shaping smallholder farmers' knowledge and attitudes toward agricultural insurance, but also notes the limited reach and effectiveness in many rural areas. Aina et al. (2024) found that crop index insurance enhances farmers' willingness to invest in improved technologies and inputs by reducing exposure to risk. This is possible because the policy holders (insured farmers) are assured of a certain income in the case of crop and livestock failure. This highlights the need to analyze the underlying factors limiting the uptake of agricultural insurance schemes. Studies by Adah et al. (2016) on rural farmers' attitudes towards agricultural insurance, and Okpukpara et al. (2021) on determinants of access and usage, a significant research gap still remains.

Method & Materials

The study was in Kaduna State and Niger State as agriculture is the main occupation of the inhabitants. The data was collected digitally using the ODK application. A multi-stage random sampling procedure was employed to select a total of 240 smallholder farmers comprising 120 respondents from Kaduna State and 120 from Niger State to assess the adoption of agricultural insurance among farming households. The sampling process was designed to ensure representative coverage across different Agro-ecological zones within

both states. In the first stage, three Agricultural Development Programme (ADP) zones were purposively selected from each state, based on the intensity of agricultural activities and accessibility for fieldwork. In Kaduna State, the selected zones included Lere, Samaru, and Maigana, while in Niger State; three corresponding ADP zones were also selected based on similar criteria. In the second stage, a total of 10 AEAs were involved in administering the survey instrument 6 AEAs in Niger State, distributed across the 3 ADP zones, and 4 AEAs in Kaduna State, assigned to Lere and Samaru zones. Each AEA was responsible for administering the questionnaire to 20 respondents within their respective zones. In order to achieve the stated objectives, descriptive statistics Descriptive statistics such as frequency distribution, percentage and mean were used. Inferential analyses such as regression analysis were employed to analyze the data.

Results and Discussion

Socio Economic Characteristics of the Respondents

Table 1 shows the socio-economic characteristics of the respondents which include age, gender, farm size and main crops cultivated. The result shows that Majority (54.2%) of the respondents are of age greater than 35 years, 31.3% are between 29-35 years while 14.6% are of less than 29 years. This means that the respondents were fairly old but still economically active and should be able to adopt agricultural insurance. This is in line with the studies (Oladele, 2011; Idowu et al., 2019) have shown that older farmers, though experienced, may be more conservative in adopting new technologies compared to younger ones, yet their active engagement in farming indicates potential for uptake when the perceived benefits are clear. Majority of the respondents (63.7%) are male while 36.3% are females. This is in line with the study by Adeyenu et al., (2016) who asserted in his study that majority of the farmers were male. This could be because agricultural practice sector is dominated by men as it is a labour- intensive venture. The result also shows that majority of the respondents (65.8%) have farms between 1-3 hectares, 30% have farms less than 1 hectare, while the least (1.3%) have more than 6 hectares. This implies that majority of the farmers in the study area are smallholder farmers.

Table 1: Distribution of Respondents Based Socio Economic Characteristics

Age	Frequency	Percent
29 – 35	75	31.3
Greater than 35	130	54.2
Under 29	35	14.6
Total	240	100.0
Gender		
Female	87	36.3
Male	153	63.7
Total	240	100.0
Farm Size		
1-3 hectares	158	65.8
4-6 hectares	7	2.9
Less than 1 hectare	72	30.0
More than 6 hectares	3	1.3

Source: Field Survey, (2025)

Main Crops Cultivated

Table 2 presents the main crops cultivated by the respondents in the study areas. The results shows (49.6%) of the farmers cultivated maize. This was closely followed by rice (28.3%),

soybean (10.4%), and yam (5%). This distribution highlights the dominance of cereals in the farming systems of the study area, reflecting both their importance for household food security and their role as major cash crops. The predominance of maize cultivation is consistent with national trends, where maize is regarded as one of the most important staple crops in Nigeria due to its versatility as food, feed, and raw material for agro-industrial use (IITA, 2020; FAOSTAT, 2022).

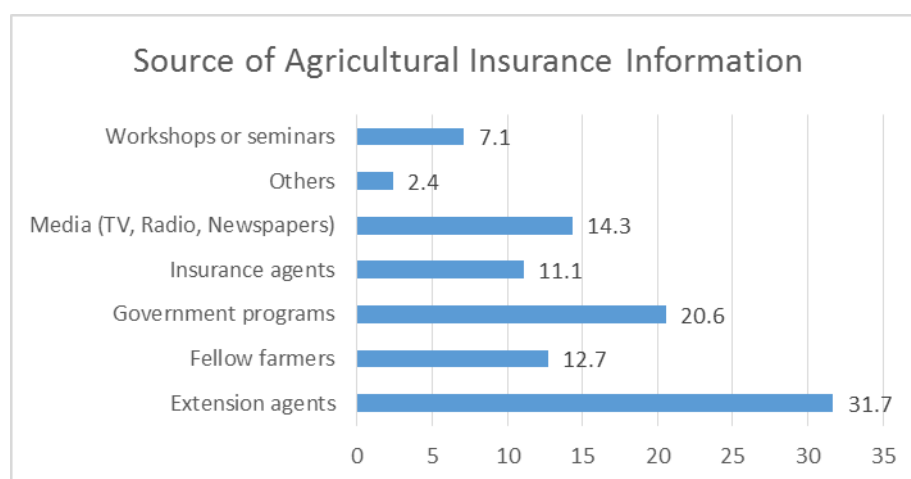
Table 2: Distribution of major crops cultivated by the respondents

Main Crops	Frequency	Percentage	Rank
Cowpea	10	4.2	5
Groundnut	2	0.8	6
Guinea Corn	1	0.4	7
Maize	119	49.6	1
Melon	2	0.8	6
Rice	68	28.3	2
Sorghum	1	0.4	7
Soybean	25	10.4	3
Yam	12	5.0	4
Total	240	100.0	

Source: Field Survey, (2025)

Sources of information on agricultural insurance by farmers

Figure 1 showed the main source of information on agricultural insurance. The findings revealed that majority of the farmers obtained information from extension agents (31.7%). This was followed by government programs (20.6%), media (14.3%) and fellow farmers (12.7%). This shows the pivotal role of extension agents in disseminating agricultural information, particularly on relatively new or underutilized innovations such as agricultural insurance. This aligns with studies by Aderibigbe *et al.*, (2014) which emphasize that extension services remain one of the most credible and effective channels for transmitting agricultural knowledge to farmers in Nigeria.



Awareness on Agricultural Insurance among the farmers

Table 3 presents shows the level of awareness of agricultural insurance among farmers. Most (52.5%) of the respondents have heard of agricultural insurance while 47.5% of the respondents have not heard of agricultural insurance. This indicates that awareness of agricultural insurance is relatively moderate in the study area. Awareness is very relative to

adoption, as farmers are unlikely to accept a service they do not fully understand (Enjema, 2016). The finding suggests a gap in knowledge dissemination, possibly due to limited extension services, low literacy levels, or inadequate promotion of insurance products by both government and private providers. This is in line with the study by Olayemi and Oladipo, (2019) which reported low levels of awareness and understanding of agricultural insurance, which in turn constrain uptake.

Table 3: Awareness of agricultural insurance among farmers

Awareness	Frequency	Percentage
Not Aware	114	47.5
Aware	126	52.5
Total	240	100.0

Source: Field Survey, (2025)

Further analysis of the findings on the extent of their awareness show that 35.4% of respondents have a moderate understanding of agricultural insurance, while 20.8% and 20.4% have low and very low understanding respectively. Only 18.8% possess a high level of understanding. This limited awareness mirrors national challenges where misconceptions and low financial literacy hinder insurance uptake. Studies (Giné & Yang, 2009; Enjema, 2016; Olayemi & Oladipo, 2019) confirm that many farmers mistake insurance for credit or subsidy programs, causing mistrust and low participation in such schemes.

Table 4: Extent of awareness of agricultural insurance among farmers

Extent of awareness	Frequency	Percentage
High	45	18.8
Low	50	20.8
Moderate	85	35.4
Very high	11	4.6
Very low	49	20.4
Total	240	100.0

Source: Field Survey, (2025)

Level of Participation in Agricultural Insurance Training or Awareness Program among Farmers

Table 5 reveals that a significant majority of farmers (75%) have not participated in any training or awareness program on agricultural insurance, while only 20% reported having attended such programs. This underscores a major gap in farmer education and sensitization on the subject. Considering that training and awareness are key drivers of adoption, the low participation rate suggests limited structured exposure to relevant information, which may hinder farmers' understanding, perception, and willingness to adopt agricultural insurance.

Table 5: participation in agricultural insurance training or awareness program among farmers

Participation in agricultural insurance trainings	Frequency	Percentage
Not participated	180	75.0
Participated	60	25.0
Total	240	100.0

Source: Field Survey, (2025)

Level of uptake of Agricultural Insurance Coverage among farmers

Table 6 presents the level of farmers' uptake to agricultural insurance coverage. Findings reveal that a significant majority (81.75%) of respondents do not have any form of

agricultural insurance, while only 18.25% reported being currently covered. This highlights the continued low interest of agricultural insurance among smallholder farmers in Nigeria, despite its critical role in managing risks associated with climate change, pest infestations, and production-related uncertainties. These findings corroborate earlier studies by Enjema (2016) and Olayemi & Oladipo (2019), which attribute low adoption rates to factors such as limited awareness, unaffordable premium rates, poor access to insurance providers, and widespread mistrust of insurance institutions.

Table 5: level of farmers' access to agricultural insurance coverage

uptake to agricultural insurance coverage	Frequency	Percentage
No uptake	103	81.75
uptake	23	18.25
Total	126	100.00

Source: Field Survey, (2025)

Farmers' Perceptions of the Benefits of Agricultural Insurance

The result shows that 98.1% have never benefited from agricultural insurance coverage in the past while only 1.9% have benefited from the agricultural insurance coverage. This implies a very poor access to agricultural insurance in Nigeria and underscores the limited practical impact of agricultural insurance on smallholder farmers in the study area, despite the existence of policies and programs designed to promote adoption.

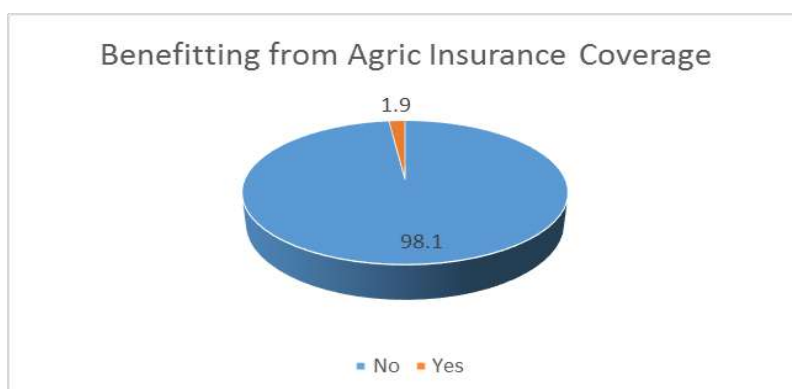


Figure 2: Forms of Agricultural Insurance Cover among Benefiting Farmers

The findings indicate that 44% of the respondents had livestock insurance, 40% were covered under crop insurance, while only 4% had weather-based insurance. This pattern suggests that insurance uptake in the study area is predominantly focused on livestock and crop production, with limited adoption of weather-related insurance despite rising climate risks. The relatively higher uptake of crop insurance may be attributed to targeted interventions by government and private sector actors aimed at safeguarding staple crops such as maize and rice, aligning with observations by Olayemi & Oladipo (2019).

Table 6 Types of Agricultural Insurance Cover among Benefiting Farmers

Variable	Frequency	Percentage
Crop Insurance	10	40
Livestock Insurance	11	44
Others	1	4
Weather Insurance	1	4
Yield Insurance	2	8
Total	25	100

Source: Field Survey, (2025)

Level of Uptake of Agricultural Insurance

Table 6 presents the results of a multiple regression analysis examining the influence of selected socioeconomic factors on the level of uptake of agricultural insurance among farmers in the study areas. The value of adjusted R² was found to be 0.054, indicating that approximately 5.4% of the variation in the level of insurance uptake is explained by the included socioeconomic variables. Although the explanatory power of the model is low, the findings provide useful insights into the determinants of agricultural insurance adoption. The age of respondent had a coefficient of 0.046 and was found to have a positive and statistically significant at 5% level of significance. This implies that older farmers are more likely to participate in agricultural insurance schemes, possibly due to their greater farming experience and risk awareness compared to younger farmers.

Level of education (0.034) was found to be positive and significant at 10% level of significance. This suggests that more educated farmers are slightly more inclined to adopt agricultural insurance, likely because education enhances understanding of insurance benefits and improves access to information. The coefficient for sex (-0.056) was negative and significant at the 10% level of significance. This implies that male farmers were less likely to adopt agricultural insurance compared to their female counterparts. This could reflect gender-based differences in risk perception or access to financial services. The finding differs with Ajiboye et al., (2018) who established educational level, farm size and accessibility to credit facility were found to be significant and very crucial to the decision by farmers to acquire insurance policy.

Table 6: Multiple Regression Analysis of Socioeconomic Factors on Level of Uptake of Agricultural Insurance

Variable	Coefficients	Standard Error	t-Value	Sig.
(Constant)	1.767	0.084	21.040	0.000
Age of Respondent	0.046	0.022	2.102	0.038**
Level of Education	0.034	0.020	1.693	0.094*
Farm Size	0.028	0.033	0.850	0.398
Sex	-0.056	0.033	-1.681	0.096*
R ²	.092			
Adjusted R ²	.054			

Source: Computed Using SPSS; ***P<0.01, **P<0.05, *P<0.1

Challenges to adopting agricultural insurance by farmers

The main challenges to adopting agricultural insurance by the respondents were inadequate information and education (15.8%), difficulty in claim settlement (14.4%), high premium cost (13.2%), limited availability of suitable insurance products (12.5%), complexity of insurance products (11.9%) and lack of trust in insurance companies. This is in line with studies by Greatrex *et al.* (2015); Olayemi and Oladipo (2019); and Makki *et al.* (2020) which show that uptake of agricultural insurance remains limited, with many farmers either newly exposed to insurance schemes or reluctant to sustain participation due to issues such as low awareness, mistrust of insurers, high premium costs, and delayed claim settlements.

Table 7: Challenges to adopting agricultural insurance by farmers

Challenges	Frequency	Percent
High Premium Cost	109	13.2
Lack of trust in insurance companies	93	11.3
Complexity of insurance products	98	11.9
Limited availability of suitable insurance products	103	12.5
Poor past experiences	74	9.0
Inadequate information and education	130	15.8
Difficulty in claim settlement	119	14.4
Lack of financial resources	90	10.9
No access	9	1.1
Total*	825	100.0

Source: Field Survey, (2025) Multiple Options*

CONCLUSION AND RECOMMENDATIONS

This study assessed farmers' knowledge, perceptions, and adoption of agricultural insurance and found generally low levels of awareness and uptake among smallholder farmers. Key barriers to adoption include inadequate information, difficulty in claim settlement, high premium costs, limited availability of suitable products, and a lack of trust in insurance providers. Despite these challenges, many farmers expressed willingness to participate if improvements were made particularly in the areas of government support, targeted education and training, reduced premium costs, faster claims processing, and increased transparency. Age, education, and sex significantly influenced agricultural insurance uptake, with older and more educated farmers more likely to adopt, while males were less likely than female. The findings highlight that while agricultural insurance remains underutilized, it holds strong potential as a risk management tool to enhance farmers' resilience against climate-induced shocks and production losses. Addressing the identified constraints through coordinated policy efforts, institutional support, and awareness creation will be essential for increasing adoption and ensuring long-term sustainability. Based on the findings, the following were recommended;

1. There is need to develop awareness campaigns specifically to resonate with rural audiences.. Partnering with trusted community-based organizations and farmer associations can enhance credibility and local engagement. Radio is a powerful tool in rural communities due to its wide reach and accessibility and messaging should be in local languages,
2. Most farmers are unable to afford insurance due to high premium costs. Government or donor-backed subsidies could make agricultural insurance more affordable and attractive. Subsidies should be attached to cost of insurance to enable farmers have access to premium insurance at a better price.
3. Insurance products should be easy to understand, with clear terms, transparent claim processes, and flexible options that reflect the diverse nature of smallholder farming. There is need to designed the products based on farmers' needs and involving them in the development process to improve their trust and relevance for greater uptake.
4. The need to strengthen the regulatory oversight of insurance providers to ensure transparency, efficient claims processing, and farmer protection. This could be by mainstream agricultural insurance into national agricultural and climate resilience policies to ensure long term government commitment and coordination.

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WORKPLACE SAFETY CULTURE AND INTRAPRENEURSHIP IN NIGERIAN SMALL AND MEDIUM-SIZED ENTERPRISES (SMES): A CONCEPTUAL MODEL

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Abstract

Small and Medium Enterprises (SMEs) in Nigeria operate in highly competitive environments where innovation, adaptability, and employee initiative are essential for sustainability and growth. Despite the strategic importance of occupational health and safety (OHS), workplace safety is often treated as a compliance obligation rather than a potential catalyst for innovation. Consequently, limited attention has been given to the relationship between workplace safety culture and intrapreneurial behaviour in Nigerian SMEs. This conceptual paper develops a framework linking workplace safety culture to employee innovation and entrepreneurial engagement through the mediating roles of psychological safety, employee voice, knowledge sharing, and calculated risk-taking. The study draws on Psychological Safety Theory, Corporate Entrepreneurship Theory, and Social Exchange Theory to explain how workplace safety culture can stimulate intrapreneurial behaviour. Adopting a conceptual research design, the paper synthesises relevant literature and positions workplace safety culture as a multidimensional construct comprising psychological safety, physical safety climate, safety leadership, and hazard management practices. The analysis suggests that psychologically safe work environments encourage employee voice, creativity, knowledge sharing, and proactive problem-solving, which are critical drivers of Intrapreneurship. Proactive safety climates and supportive leadership further strengthen employees' willingness to engage in innovative and calculated risk-taking behaviours. Conversely, compliance-dominant safety cultures characterised by rigid control and punitive practices may inhibit creativity and organisational learning. The framework advances four propositions linking workplace safety culture to intrapreneurial outcomes through psychological and behavioural mechanisms. The paper concludes that workplace safety culture should be viewed as a strategic organisational capability that enhances both employee wellbeing and entrepreneurial performance. It recommends that SME managers promote psychologically safe environments, encourage participatory safety practices, and integrate safety objectives with innovation strategies to strengthen organisational resilience and competitiveness.

Keywords: Creativity-oriented safety culture, Employee voice, Intrapreneurial behaviour, Psychological safety, Workplace safety culture

Introduction

Small and Medium Enterprises (SMEs) are widely recognised as important drivers of economic growth, employment generation, innovation, and entrepreneurial development in

both developed and developing economies. In Nigeria, SMEs constitute a significant component of the productive sector and contribute substantially to job creation, poverty reduction, and industrial diversification (Ayyagari et al., 2011; Olaleye et al., 2024). Their ability to respond quickly to market opportunities and changing consumer demands makes them important vehicles for sustainable economic development. Despite their economic significance, however, many Nigerian SMEs operate under challenging conditions characterised by infrastructural deficiencies, institutional uncertainties, limited access to finance, and weak regulatory enforcement mechanisms (International Labour Organization (ILO, 2023).

One area that continues to receive inadequate attention within many Nigerian SMEs is occupational health and safety (OHS). Although OHS frameworks are intended to protect workers from physical, psychological, and operational hazards, compliance levels remain relatively low, particularly within resource-constrained enterprises. Existing evidence suggests that workplace safety is often viewed primarily as a regulatory obligation rather than as a strategic organisational capability capable of improving employee wellbeing, organisational learning, and business performance (ILO, 2023). Consequently, many SMEs adopt reactive rather than proactive approaches to workplace safety management.

Recent developments in organisational behaviour and entrepreneurship research have challenged the traditional view of workplace safety as merely a risk-control mechanism. Contemporary scholarship increasingly recognises that organisations characterised by supportive safety environments often exhibit stronger employee engagement, greater trust, improved communication, and enhanced organisational learning (Clarke, 2013; Christian et al., 2009). Such outcomes are particularly important in SMEs where innovation, adaptability, and employee initiative frequently determine organisational survival and competitiveness. Accordingly, workplace safety may have implications that extend beyond accident prevention to include the stimulation of innovative and entrepreneurial behaviours within organisations.

At the same time, intrapreneurship has emerged as a critical mechanism through which organisations foster innovation, strategic renewal, and competitive advantage (Kuratko et al., 2015). Intrapreneurship involves employees identifying opportunities, generating innovative ideas, and implementing creative solutions within existing organisational structures (Ribeiro-Soriano & Urbano, 2010). However, such behaviours are unlikely to flourish in environments where employees fear criticism, punishment, or negative consequences for expressing ideas and challenging established practices.

This observation highlights the importance of psychological safety within contemporary organisations. Psychological safety refers to employees' shared belief that they can express opinions, raise concerns, and engage in interpersonal risk-taking without fear of embarrassment or retaliation (Edmondson & Lei, 2014). Research has consistently shown that psychologically safe environments encourage employee voice, creativity, knowledge sharing, and innovation (Frazier et al., 2017; Newman et al., 2017). In high power-distance environments such as Nigeria, where hierarchical relationships may discourage open communication, psychological safety becomes particularly important for stimulating employee participation and innovative behaviour (Adekanmbi & Ukpere, 2023).

Although substantial research has examined workplace safety culture and intrapreneurship independently, limited attention has been given to the mechanisms through which safety-related organisational practices may influence entrepreneurial behaviour within Nigerian

SMEs. Specifically, there is insufficient understanding of how workplace safety culture may create psychologically safe environments that encourage employee voice, knowledge sharing, and intrapreneurial engagement. Addressing this gap is important because SMEs increasingly require innovative and proactive employees to remain competitive in dynamic business environments.

This paper therefore develops a conceptual framework that explains how workplace safety culture can influence intrapreneurial behaviour through the mediating roles of psychological safety and employee voice. By repositioning workplace safety culture as a strategic organisational capability rather than merely a compliance requirement, the study contributes to emerging discussions on innovation, entrepreneurship, and organisational sustainability within the Nigerian SME sector.

Literature Review

The literature review examines the conceptual and theoretical foundations underpinning the relationship between workplace safety culture and intrapreneurial behaviour in SMEs. Specifically, the review discusses: (i) conceptualising workplace safety culture in SMEs; (ii) intrapreneurship in the SME context; (iii) theoretical foundations of the conceptual model; (iv) safety climate, psychological safety and employee voice; (v) risk-taking behaviour, hazard management and innovation outcomes; and (vi) compliance-oriented versus creativity-oriented safety culture. These themes collectively provide the basis for the proposed conceptual framework and propositions.

Conceptualising Workplace Safety Culture in SMEs

In contemporary organisations, workplace safety extends beyond accident prevention to encompass the values, behaviours, and organisational practices that shape employees' attitudes toward safety and wellbeing. Workplace safety culture represents a system of shared assumptions, practices, and leadership priorities that determine how safety is perceived and enacted within organisations (Zohar, 2010). Early safety research focused primarily on technical compliance and hazard control; however, modern perspectives recognise safety culture as embedded within broader organisational culture and climate systems (Clarke, 2013). Safety climate, defined as shared employee perceptions regarding the importance of safety in the workplace, functions as a measurable manifestation of safety culture (Neal & Griffin, 2006).

Meta-analytic evidence confirms that safety climate significantly predicts safety compliance, participation, and injury reduction (Christian et al., 2009). Yet, beyond physical outcomes, safety culture influences psychosocial factors including trust in leadership, job satisfaction, and organisational commitment (Clarke, 2013). In SMEs, where formalised OHS structures are often limited, safety culture is shaped largely by owner-manager attitudes and informal practices (Kines et al., 2011). This is particularly relevant in developing economies where institutional enforcement mechanisms may be inconsistent (ILO, 2023).

In Nigeria, SME workplaces frequently operate under constrained financial resources, limited formal risk-assessment systems, and reactive safety management practices. Such conditions often produce compliance-oriented cultures that emphasise adherence to rules while discouraging open discussion of workplace hazards or operational improvements. However, contemporary safety research increasingly highlights the value of participatory safety systems

in which employees are encouraged to raise safety concerns, report risks, and recommend improvement strategies. These participatory environments promote safety voice, collaborative learning, and proactive problem-solving behaviours that strengthen organisational resilience and knowledge exchange (Curcuruto, Parker, & Griffin, 2019; Sun et al., 2022). Empirical studies further demonstrate that a supportive safety climate enhances employees' willingness to speak up about safety issues, particularly when psychological safety enables workers to communicate concerns without fear of negative consequences (Sun et al., 2022). In such contexts, upward safety voice facilitates early identification of hazards and promotes team learning processes that improve safety performance and organisational learning (Silla, Gajudo, & Gracia, 2025). Consequently, participatory safety cultures not only improve safety outcomes but also contribute to knowledge sharing and continuous improvement, both of which are essential foundations for innovation and intrapreneurial behaviour in organisations.

A critical extension of safety culture is psychological safety. Edmondson and Lei (2014) conceptualise psychological safety as a climate of interpersonal trust and mutual respect that enables open communication. Meta-analytic findings show that psychological safety is positively associated with information sharing, creativity, and team learning behaviours (Frazier et al., 2017). In SMEs, where innovation often depends on informal collaboration and knowledge exchange, psychological safety becomes a strategic asset.

Leadership behaviour plays a critical role in shaping organisational safety culture and employee engagement in safety-related activities. Contemporary research shows that leadership approaches characterised by supportive communication, ethical conduct, and transformational behaviours are strongly associated with improved safety compliance, proactive safety participation, and employee commitment to organisational goals (Inness et al., 2010; Kaluza et al., 2020). When leaders demonstrate openness, encourage transparent communication, and create a non-punitive environment for reporting safety concerns, employees are more likely to respond with increased discretionary effort and constructive participation in organisational improvement processes (Kaluza et al., 2020). In contrast, leadership environments characterised by blame or punitive responses to errors often discourage employees from reporting hazards or near-miss incidents, thereby limiting organisational learning and undermining continuous safety improvement. Importantly, safety culture intersects with employee voice. Voice behaviour, meaning constructive expression of ideas and concerns, improves organisational processes and strengthens risk management systems (Morrison, 2014). In collectivist and hierarchical environments, psychological safety mediates the relationship between leadership practices and voice (Newman et al., 2017).

Therefore, conceptualising workplace safety culture in Nigerian SMEs requires integrating structural safety systems, leadership orientation, psychological safety, and participatory mechanisms. Such integration transforms safety from a compliance tool into a dynamic organisational capability that supports both operational reliability and innovation readiness.

Intrapreneurship in the SME Context

Intrapreneurship refers to entrepreneurial behaviour undertaken by employees within existing organisations to generate innovation, strategic renewal, and organisational value. It encompasses opportunity recognition, proactive problem-solving, calculated risk-taking, and the implementation of novel ideas that enhance organisational performance and competitiveness (Neessen et al., 2019; Kuratko et al., 2021). In the context of SMEs,

intrapreneurship is particularly important because limited financial and technological resources compel firms to rely heavily on employee initiative, creativity, and internal innovation to remain competitive in volatile markets (Dabić et al., 2021).

Corporate entrepreneurship theory emphasises that organisational structures, leadership support, and cultural norms significantly shape intrapreneurial outcomes. Organisations that provide autonomy, managerial encouragement, and recognition for innovative contributions tend to stimulate higher levels of entrepreneurial behaviour among employees (Urban & Wood, 2017; Kuratko et al., 2021). Conversely, rigid bureaucratic structures and punitive organisational climates discourage experimentation, reduce learning opportunities, and inhibit creative initiative.

Psychological safety plays a crucial role in enabling intrapreneurial behaviour within organisations. Employees are more inclined to propose innovative ideas, question existing practices, and engage in calculated risk-taking when they perceive that their work environment is characterised by mutual respect and low interpersonal risk (Edmondson & Bransby, 2023). Empirical studies consistently demonstrate that psychological safety enhances creativity, knowledge sharing, and innovative work behaviour across organisational contexts (Newman et al., 2017; Li et al., 2022).

Employee voice represents a key behavioural mechanism linking psychological safety to intrapreneurial activity. Voice refers to discretionary communication aimed at improving organisational processes, identifying opportunities, and addressing emerging challenges (Chamberlin, Newton, & LePine, 2017). When employees feel psychologically safe, they are more likely to express constructive suggestions and identify improvement opportunities, thereby stimulating innovation and organisational learning. In contrast, environments characterised by fear of punishment or negative evaluation tend to suppress voice behaviours, resulting in organisational silence and reduced adaptability.

Recent evidence from developing-economy contexts further suggests that innovation capability significantly enhances SME resilience, competitiveness, and long-term sustainability (Dabić et al., 2021; Olaleye et al., 2024). Intrapreneurship strengthens this capability by embedding entrepreneurial thinking within everyday organisational activities. However, institutional and cultural factors—such as hierarchical organisational structures and high power distance—may moderate these relationships, underscoring the importance of supportive organisational climates for fostering innovation (Adekanmbi & Ukpere, 2023).

Social exchange theory also provides insight into the mechanisms that encourage intrapreneurial engagement. When organisations demonstrate support through empowering leadership, fair treatment, and supportive work environments, employees tend to reciprocate through discretionary behaviours such as creativity, innovation, and proactive initiative (Cropanzano et al., 2017). In this sense, intrapreneurship emerges not merely as an individual characteristic but as a behavioural outcome shaped by organisational relationships and contextual conditions.

Consequently, intrapreneurship in Nigerian SMEs depends heavily on organisational cultures that encourage experimentation, protect employees from punitive repercussions associated with failure, and reward innovative contributions. Embedding psychological safety within workplace safety culture may therefore provide a structural foundation for sustained intrapreneurial activity, organisational learning, and long-term competitiveness.

Theoretical Foundations of the Conceptual Model

A robust theoretical grounding is required to explain how workplace safety culture may influence intrapreneurial behaviour in Nigerian SMEs. The proposed framework integrates Psychological Safety Theory, Corporate Entrepreneurship Theory, and Social Exchange Theory to provide a multilevel explanation linking organisational climate to innovation-oriented employee behaviour. Psychological safety refers to a shared belief that the work environment permits interpersonal risk-taking without fear of embarrassment, punishment, or marginalisation (Edmondson & Lei, 2014; Frazier et al., 2017). Extensive empirical synthesis demonstrates that psychological safety predicts creativity, knowledge sharing, learning behaviour, and innovative work engagement across diverse sectors (Frazier et al., 2017; Newman et al., 2017). In climates characterised by trust and mutual respect, employees are more willing to question assumptions, propose novel ideas, and admit errors, behaviours essential for intrapreneurial action. Recent studies further show that psychological safety enhances creative involvement through positive affective states and collaborative exchange, reinforcing its central role in organisational innovation systems (Ciby & Dominic, 2026). Within SMEs, where formal innovation structures may be limited, psychological safety becomes especially important as a micro-foundation that enables experimentation and the mobilisation of new ideas.

Corporate Entrepreneurship Theory complements this perspective by situating entrepreneurial behaviour within organisational systems. Corporate entrepreneurship emphasises that innovation emerges from the interaction between individual initiative and organisational context, including leadership support, autonomy, and tolerance for calculated risk-taking (Kuratko, Hornsby, & Hayton, 2015). Firms that institutionalise supportive climates for experimentation and internal venturing report stronger innovation performance and adaptability. Importantly, corporate entrepreneurship scholars argue that organisational climate functions as a key determinant of employees' entrepreneurial orientation, shaping their willingness to pursue opportunity-driven initiatives. When safety culture extends beyond hazard control to include supportive communication and learning norms, it can strengthen the contextual conditions necessary for intrapreneurship.

Social Exchange Theory provides a relational explanation for how organisational safety investments translate into employee innovation. Contemporary scholarship indicates that when employees perceive organisational support and fair treatment, they are more likely to reciprocate through positive discretionary behaviours that benefit the organisation (Cropanzano et al., 2017). When management demonstrates a genuine commitment to both physical and psychological safety, employees interpret these actions as signals of organisational care, support, and fairness. Such perceptions strengthen trust, organisational commitment, and feelings of reciprocity, which employees often repay through proactive behaviours such as employee voice, knowledge sharing, and creative engagement. These reciprocal exchanges reinforce collaborative work environments that facilitate learning, innovation, and continuous organisational improvement. Intrapreneurship, as a discretionary behaviour that exceeds formal role requirements, is therefore partly driven by reciprocal exchanges rooted in perceived organisational support.

Integrating these theories, the model proposes that workplace safety culture shapes psychological safety perceptions, which in turn stimulate voice and creative engagement behaviours that culminate in intrapreneurial outcomes. Safety culture provides structural and

symbolic cues regarding acceptable risk boundaries. Psychological safety translates these cues into internal cognitive appraisals that reduce interpersonal fear. Voice and knowledge sharing then operationalise these perceptions behaviourally, fostering idea generation and implementation. Social exchange processes amplify these relationships by strengthening employees' motivation to reciprocate supportive treatment with innovative effort.

However, boundary conditions merit attention. Excessively permissive climates lacking accountability may reduce task discipline and undermine performance on routine activities (Newman et al., 2017). Additionally, leadership style moderates these pathways; inclusive and transformational leadership strengthens psychological safety's influence on innovation, whereas authoritarian styles weaken it (Clarke, 2013). Cultural context also plays a role, particularly in high power-distance environments where hierarchical norms can inhibit voice unless leaders explicitly signal tolerance for dissent.

Collectively, these theoretical lenses reposition safety culture from a compliance mechanism to a dynamic organisational capability that fosters innovation through relational trust, contextual support, and reciprocal engagement.

Safety Climate, Psychological Safety and Employee Voice

Safety climate refers to employees' overall assessment of the organisation's commitment to maintaining a safe work environment and the extent to which safety considerations influence organisational decisions and behaviours. Safety climate represents employees' shared perceptions regarding the extent to which safety is prioritised, rewarded, and enforced within their organisation (Neal & Griffin, 2006; Zohar, 2010). It reflects daily operational signals communicated through leadership behaviour, policy implementation, and managerial responses to incidents. Empirical research confirms that safety climate predicts safety compliance and participation behaviours (Christian et al., 2009). Yet emerging scholarship suggests that its influence extends beyond injury prevention to broader behavioural domains such as communication, engagement, and innovation.

A positive safety climate communicates that employee wellbeing is valued. From a social-cognitive perspective, such signals reduce ambiguity about acceptable behaviour and foster trust in managerial intentions. When employees perceive that raising concerns about hazards or inefficiencies will not trigger blame, psychological safety is strengthened (Edmondson & Lei, 2014).

Psychological safety refers to a workplace condition in which employees feel secure to speak up, share ideas, report concerns, and engage in constructive dialogue without fear of adverse personal or professional consequences. Psychological safety is a shared belief that the work environment supports interpersonal risk-taking and open communication (Edmondson & Lei, 2014). Meta-analytic evidence demonstrates that psychological safety significantly mediates the relationship between organisational climate and proactive behaviours, including voice and creative engagement (Frazier et al., 2017).

Employee voice refers to employees' proactive and constructive willingness to speak up, share ideas, raise concerns, and offer recommendations that contribute to organisational improvement, innovation, and problem-solving. It is defined as discretionary communication of ideas, suggestions, or concerns aimed at improving organisational functioning (Morrison, 2014). Such behaviour often involves interpersonal risk and is therefore more likely to occur in environments characterised by trust and psychological safety (Morrison, 2014; Newman et

al., 2017). Therefore, employees are unlikely to speak up unless they perceive psychological safety. Research shows that in climates characterised by trust and fairness, employees engage more frequently in voice behaviours that contribute to innovation and process improvement (Newman et al., 2017). In contrast, punitive environments suppress communication, leading to silence and lost opportunities for learning.

The interaction between safety climate and psychological safety is particularly important in SMEs. Smaller firms often rely on informal communication channels and close interpersonal relationships. In such contexts, leadership responses to safety reporting strongly influence whether employees perceive openness or threat. Studies indicate that supportive responses to error reporting enhance collective learning and innovative problem-solving (Clarke, 2013). Furthermore, participatory safety systems encourage collaborative hazard identification and solution development, reinforcing shared responsibility and collective efficacy.

Voice behaviours catalyse innovation by diversifying idea pools and stimulating constructive debate. When employees openly discuss operational inefficiencies or emerging opportunities, organisations can identify creative solutions more rapidly. Psychological safety enhances knowledge sharing and reduces knowledge hiding, thereby strengthening team-level cognitive resources necessary for intrapreneurial initiatives (Frazier et al., 2017). These processes convert safety-oriented communication into innovation capability.

However, contextual moderators influence these dynamics. Power-distance cultural norms may discourage upward voice unless leaders deliberately model inclusive behaviours and encourage open communication. Organisational justice perceptions also shape whether a positive safety climate translates into psychological safety. When employees perceive fairness in organisational procedures and interpersonal interactions, they are more likely to trust leadership intentions and engage in constructive voice behaviours and collaborative communication. Contemporary organisational behaviour research shows that perceptions of justice strengthen employee trust, reciprocity, and willingness to contribute discretionary effort toward organisational improvement and innovation (Colquitt et al., 2023).

Thus, safety climate, psychological safety, and employee voice form a sequential pathway. Safety climate provides structural signals; psychological safety internalises these signals; and voice behaviours externalise them through proactive communication and creative contribution. Embedding this pathway within SME practices enables safety culture to function not merely as risk mitigation but as a foundational mechanism for continuous improvement and intrapreneurial activity.

Risk-Taking Behaviour, Hazard Management and Innovation Outcomes

Risk-taking behaviour refers to the propensity of employees to undertake calculated and innovative actions in situations characterised by uncertainty, with the aim of achieving organisational improvement, innovation, or strategic advantage. Such behaviour is a critical component of intrapreneurship because it enables employees to pursue opportunities, test new ideas, and contribute to organisational renewal and growth. Innovation involves uncertainty, experimentation, and the possibility of failure. However, safety research traditionally frames risk as something to be minimised. Reconciling these perspectives requires distinguishing reckless risk from calculated risk-taking supported by structured hazard management.

Psychological safety plays a crucial role in enabling calculated risk-taking. Employees who perceive interpersonal security are more likely to experiment with novel approaches and propose unconventional solutions without fear of reputational damage (Edmondson & Lei, 2014). Empirical evidence demonstrates that psychological safety positively predicts creative behaviour and innovative work performance (Frazier et al., 2017). When employees are confident that mistakes will be treated as learning opportunities rather than grounds for punishment, cognitive resources previously allocated to self-protection can be redirected toward exploration.

Effective hazard management systems provide structural stability that supports such exploration. Clear safety procedures, risk assessments, and training programmes reduce operational uncertainty, creating a reliable foundation upon which innovative experimentation can occur. Research in safety science indicates that when employees perceive operational risks as properly managed and controlled, they demonstrate stronger engagement in proactive problem-solving and continuous improvement behaviours (Curcuruto, Parker, & Griffin, 2019). This suggests that robust safety systems do not suppress innovation; rather, they provide the psychological assurance necessary for constructive risk-taking and organisational learning.

Innovation outcomes vary in magnitude. Incremental innovations involve small process improvements, whereas radical innovations require more substantial departures from established routines. Studies indicate that climates characterised by psychological safety are particularly conducive to radical innovation because they reduce fear associated with high-uncertainty initiatives (Newman et al., 2017). Knowledge sharing further amplifies this effect by allowing teams to collectively manage uncertainty and build upon diverse perspectives.

Nevertheless, an imbalance can be counterproductive. Excessive tolerance for risk without accountability may undermine operational discipline. Therefore, organisations must balance structured hazard control with supportive learning environments. Leadership plays a mediating role by framing failures constructively while maintaining clear performance standards (Clarke, 2013).

In Nigerian SMEs, where environmental volatility is pronounced, combining disciplined safety management with supportive psychological climates may enhance resilience. By ensuring predictable operational processes while encouraging creative exploration, firms can achieve innovation outcomes without compromising safety integrity. Thus, risk-taking and hazard management are not mutually exclusive; rather, they are complementary components of sustainable intrapreneurial systems.

Compliance-Oriented versus Creativity-Oriented Safety Culture

Safety cultures differ in orientation, with significant implications for intrapreneurship. Compliance-oriented safety culture is a safety management approach that prioritises strict adherence to rules, procedures, and regulatory requirements to minimise workplace risks and ensure operational control. Thus, a compliance-oriented safety culture emphasises rule enforcement, monitoring, and sanctioning of deviations. Its primary objective is accident prevention through strict adherence to procedures. While such cultures may effectively reduce immediate hazards, they often rely on punitive mechanisms that discourage open discussion of errors. Research indicates that blame-oriented climates suppress psychological

safety and limit voice behaviour, thereby constraining opportunities for organisational learning (Edmondson & Lei, 2014; Newman et al., 2017).

In contrast, creativity-oriented safety culture is a safety management approach that combines risk prevention with employee empowerment, learning, innovation, and participatory problem-solving to achieve both safety and organisational improvement. Instead of viewing errors solely as violations, it treats them as diagnostic opportunities for systemic enhancement. Psychological safety is central in this orientation because it allows employees to report near misses and propose process innovations without fear of reprisal. Empirical evidence shows that psychologically safe environments enhance creative involvement and innovative work behaviour (Frazier et al., 2017). Such cultures maintain hazard controls while encouraging participatory dialogue and experimentation.

The comparative implication is clear. Compliance-oriented cultures prioritise stability but may inadvertently suppress intrapreneurial initiative. Creativity-oriented cultures, by embedding safety within a learning framework, facilitate both risk management and innovation. Achieving this balance requires leadership that models openness, reinforces fairness, and frames safety as a shared responsibility aligned with organisational growth.

Conceptual Model and Propositions

The proposed conceptual model positions **workplace safety culture** as a multidimensional construct comprising psychological safety, physical safety climate, safety leadership, and hazard management practices. These elements interact to shape the intrapreneurial orientation of employees within Nigerian SMEs. Drawing on Psychological Safety Theory (Edmondson & Lei, 2014), Corporate Entrepreneurship Theory (Kuratko et al., 2015), and Social Exchange Theory (Cropanzano et al., 2017), the model argues that when employees perceive both emotional and physical protection, they reciprocate with discretionary innovative effort.

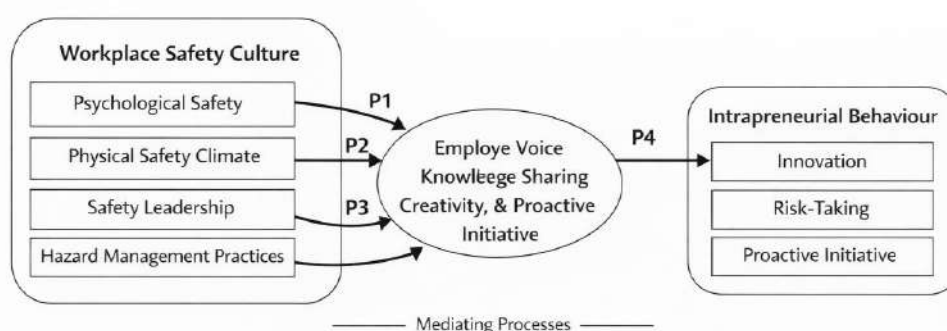


Figure 1. Conceptual Framework Linking Workplace Safety Culture to Intrapreneurship in Nigerian SMEs

Figure 1 presents the proposed conceptual framework linking workplace safety culture to intrapreneurial behaviour in Nigerian SMEs. The framework illustrates how workplace safety culture, comprising psychological safety, physical safety climate, safety leadership, and hazard management practices, shapes intrapreneurial behaviour through key mediating mechanisms such as employee voice, knowledge sharing, creativity, and proactive initiative. The labelled paths (P1–P4) represent the central propositions that connect these safety culture dimensions to intrapreneurial outcomes, thereby positioning workplace safety culture as a strategic foundation for innovation and entrepreneurial engagement within SMEs.

The model reflects a sequential relationship beginning with workplace safety culture, which fosters psychological safety and effective hazard management practices. These conditions encourage behavioural processes such as employee voice, knowledge sharing, and constructive risk-taking, ultimately leading to intrapreneurial outcomes within the organisation. The framework therefore advances four key propositions: (P1) psychological safety positively influences employee intrapreneurial behaviour; (P2) a proactive physical safety climate strengthens the relationship between risk-taking and innovation outcomes; (P3) safety leadership mediates the relationship between safety culture and intrapreneurship; and (P4) compliance-dominant safety cultures weaken innovative performance compared to creativity-oriented safety cultures.

In all, the framework highlights that workplace safety culture extends beyond regulatory compliance to operate as a strategic enabler of innovation. It demonstrates how Nigerian SMEs can leverage both psychological and physical safety mechanisms to stimulate employee initiative, creativity, and sustainable entrepreneurial performance.

Conclusion and Recommendations

This conceptual study highlights the critical role of workplace safety culture in fostering intrapreneurial behaviour within Nigerian SMEs. By integrating psychological safety, physical safety climate, safety leadership, and hazard management, the framework demonstrates how employee voice, knowledge sharing, and calculated risk-taking mediate innovation outcomes. The analysis underscores that compliance-oriented safety practices, while essential for operational risk reduction, may constrain creativity, whereas creativity-oriented safety cultures enhance discretionary innovative behaviours. Grounded in Psychological Safety Theory, Corporate Entrepreneurship Theory, and Social Exchange Theory, the model provides a coherent lens for understanding how organisational safety mechanisms can be leveraged to stimulate intrapreneurship, offering practical guidance for managers, policymakers, and researchers.

Recommendations

Based on the conceptual model linking workplace safety culture to intrapreneurial behaviour in Nigerian SMEs, several practical and policy-oriented recommendations emerge. These are aimed at guiding organisational leaders, managers, and policymakers to leverage both psychological and physical safety mechanisms to foster employee creativity, proactive risk-taking, and innovation. The recommendations focus on enhancing psychological safety, integrating safety with innovation systems, strengthening leadership capacity, and aligning organisational practices with a creativity-oriented safety culture, thereby translating theoretical insights into actionable strategies.

1. Embed Psychological Safety in SME Practices

SME leaders should actively cultivate psychological safety by encouraging employees to share ideas, report hazards, and challenge existing practices without fear of reprisal. Leadership training programs should emphasize supportive communication, constructive feedback, and recognition of innovative contributions. Managers should model openness and acknowledge mistakes as learning opportunities, which strengthens intrapreneurial engagement and creativity.

2. Integrate Physical Safety with Innovation Systems

Organisations must balance compliance with proactive innovation by ensuring that operational hazards are managed through robust safety protocols. Clear procedures, regular training, and hazard risk assessments provide employees the confidence to experiment and take calculated risks without compromising safety. SMEs should integrate safety management with continuous improvement systems, making safety a platform rather than a constraint for innovation.

3. Develop Safety Leadership Capacity

Leaders play a critical role in translating safety culture into intrapreneurial outcomes. Safety leadership should focus on enabling employee voice, facilitating knowledge sharing, and promoting collaboration across teams. Leadership development programs should teach managers how to model safety-conscious risk-taking and support employees' creative initiatives, ensuring alignment between safety objectives and organisational innovation goals.

4. Shift from Compliance-Oriented to Creativity-Oriented Safety Culture

SMEs should gradually reframe safety culture from a strict compliance paradigm to one that encourages learning and experimentation. While maintaining essential hazard controls, organisations should reward proactive identification of inefficiencies, innovative problem-solving, and calculated risk-taking. Policies and recognition systems should highlight creativity and intrapreneurial contributions to reinforce these behaviours.

5. Leverage Social Exchange Mechanisms

Organisations should use social exchange principles to strengthen employee engagement. By investing in visible safety measures and demonstrating concern for employee wellbeing, firms can motivate employees to reciprocate with discretionary behaviours such as innovation, initiative, and collaborative problem-solving. Surveys and feedback systems can help track perceptions of organisational support and guide managerial interventions.

6. Policy and Regulatory Implications

Policymakers and industry associations can support SMEs by providing guidelines for safety-integrated innovation practices, offering incentives for firms that successfully link safety culture to intrapreneurial outcomes, and facilitating access to training resources. This can encourage broader adoption of safety-innovation frameworks, enhancing sector-wide competitiveness and employee wellbeing.

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EFFECT OF DIGITAL SKILLS, ORGANISATIONAL SUPPORT ON EMPLOYEE RESPONSE TO TECHNOLOGICAL CHANGE

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Abstract

The banking industry stands at the epicentre of digital shift as it leverages automation, artificial intelligence, mobile applications, and data-driven decision systems to redefine service delivery. This study examined the impact of Digital Skills and Organisational Support on Employee Response to Technological Change in Access Bank Plc, Nigeria. Beyond the shift to digitization, the most significant difference between past and present is that employee flexibility now plays a major role in determining which banks succeed. The study utilized TAM (Technology Acceptance Model) with a quantitative cross-sectional design to collect data from 400 employees from key departments using a structured questionnaire. A multistage sampling technique was adopted, involving purposive sampling to select Access Bank Plc and relevant departments, and stratified sampling to ensure adequate representation of employees across the selected departments. Partial Least Squares Structural Equation Modelling (PLS-SEM- version 4) analyses were used to examine direct and moderating relationships among the variables. The findings indicated that employees with strong digital competence are more positive and adaptive to technological change, while those struggling with digital skills drastically outperform in supportive organisational settings. Contextual or organisational support was identified as a facilitator that increased employee confidence and readiness to work with new technologies. Furthermore, the interaction effect of digital skills and organisational support showed that even employees with medium digital skills exhibited a more positive response when sufficient support systems exist. The overall model provided moderate explanatory and predictive power, indicating both its reliability and theoretical validity. The study into these findings suggests the overall success of digital transformation relies on technology but also human factors. It encourages entities like Access Bank and others to invest in regular digital training, provide infrastructure support, and practice transparency so as to engender proactive positive responses from employees. From foregoing work to determine whether a digital-ready workforce may be nurtured, organisations can cultivate a hard-wired innovative capacity at the individual level that can support advancement of other know-hows in banking sector, enabling Nigeria's banking industry to achieve sustained innovation and long-term competitiveness by combining technological growth with human advancement.

Keywords: Digital Skills, Employee Resistance, Organisational Support, Technology Acceptance Model (TAM), Technological Change

Introduction

Organisations around the world are undergoing significant technological transformations in search of operational efficiency, competitive advantage, and customer satisfaction in the fast-changing digital economy (Alshaibani, Badawi & Aoun, 2024). It is the banking industry that sits at the heart of this digital transition - re-inventing service delivery using automation, artificial intelligence, mobile applications and data driven decision systems. In Nigeria, the speed of this transformation has quickened significantly in the last five years, driven by increasing customer expectations, fintech competition and growing mobile connectivity. Data from Nigeria Inter-Bank Settlement System (NIBSS, 2023) shows that transaction volumes for the digital banking sector increased by over 45% between 2020 and 2022 while in the same period, mobile payments volume grew by more than 55%. As banks adopt new technologies in an effort to stay competitive, the success of these initiatives depends more on the human factors that underpin them - specifically employees' digital capabilities and willingness to embrace change within their organisation.

Although, organisations often promote digital innovation as a route to growth, the human aspect of transformation is more nuanced. Some employees respond to technological change with enthusiasm and curiosity, while others react with apprehension, uncertainty or fatigue. These diverse responses can affect the course of digital transformation programs. Research by Maria and Halim (2025) as well as Shibeika, Abdalrahman, and Alshaygy (2025) highlight that employees' responses to the shift is a function of their digital competence level, perceived organisational support, and psychological preparedness. If they feel unprepared or unsupported, workers may panic or withdraw. On the other hand, when organisations offer adequate training, communication and emotional reassurance employees respond positively showing adaptability and ingenuity. This reframing between resistance and response is a central theme for assessing complete employee activity throughout technological upheaval.

These dynamics are especially stark in Nigeria's banking industry. As the race between traditional banks and agile fintech companies heats up, institutions are increasingly pressured to have their systems and personnel modernised at once. In a 2022 report by Enhancing Financial Innovation and Access (EFInA), it was found that about 37% of bank staff in Nigeria experienced discomfort or hesitancy with the new digital systems, attributing their issues to insufficient digital training and poor communication. In a similar vein, the PwC Nigeria Digital Banking Survey (2023) of financial institutions noted that technology adoption often eclipse human adaptability, leading to suboptimal performance results. These insights suggest that investing in technology alone is not a panacea for transformation success; it is the alignment of people, culture and systems that will drive sustainable change.

Nigerians need look no further for a revealing case study of these realities than Access Bank Plc, one of the country's top financial institutions. Having employed over 28,000 personnel (Awodu, 2023) and putting up a strong digital vision front, the bank has announced several groundbreaking initiatives such as AI-powered chatbot Tamara, digital-only branches and "Access More" mobile platform. This innovation is a testament to Access Bank's consistent quest for the integration of technology across every touchpoint within its service ecosystem. But that companies have had mixed experiences with this transformation (Awodu, 2023; Omoniyi, Eniya & Ojeogwu, 2024). Some staff have quickly adjusted to digital processes, but others in particular those who've done hands-on banking for years struggle to come up-to-

speed with the change in skills and mindsets. This divergence underscores a fundamental reality: the greatest driver behind successful digital transformation will not be systems or software, but rather the way employees respond to technology and how they perceive its impact on their work.

The intricacy of these reactions demands further insight into the elements that influence them. Previous research (Parjanen, 2025; Cruz & Soeiro, 2025) indicates that at least two variables fully explained their findings: digital skills and organisational support. Research suggests that employees with strong digital skills are more likely to see technological change as a growth opportunity whereas those lacking confidence in using technology could feel threatened (and self-disengaged). In its own turn, organisation support plays a dual role as an ice-breaker and barrier that equips an informed employee to embrace the change while buffering the psychological strain triggered by it. When organizations invest in training, communicate transparently and empathize with managers they foster environments where employees feel empowered and encouraged to adopt digital tools instead of pushing back on them.

Previous studies have examined digital transformation, digital skills, technology adoption, and employee performance in different sectors. For example, Ebere and Aturu-Aghedo (2026) examined digital skills and employee performance among non-teaching staff of the National Open University of Nigeria and found that digital competence significantly improved job performance. However, their study was conducted in the higher education sector rather than the banking industry, and it focused mainly on employee performance rather than employee response to technological change. Similarly, studies on digital transformation in Nigerian deposit money banks have often focused on institutional outcomes such as operational efficiency, internal control effectiveness, audit quality, service delivery, and financial performance. Although these studies provide useful insights, they pay limited attention to employees' behavioural and emotional responses to technology-driven change.

In addition, recent studies such as Kakeocha et al. (2026) and Olayinka (2026) have contributed to the literature on digitalisation, technology adoption, and organisational outcomes. However, these studies have not sufficiently explained how digital skills combine with organisational support to shape employee response during technological transformation. Many existing studies treat digital skills and organisational support as independent factors, without examining whether organisational support can strengthen or weaken the effect of digital skills on employee response. This is a major limitation because employees with digital skills may still respond negatively to technological change if their organisation does not provide adequate training, infrastructure, communication, and managerial support. Conversely, employees with moderate digital competence may respond more positively when the organisation creates a supportive environment for learning and adaptation.

Therefore, this study differs from previous studies in three major ways. First, while many studies focus on organisational performance, customer adoption, financial outcomes, or general technology adoption, this study focuses specifically on employee response to technological change. Second, the study examines digital skills and organisational support together, rather than treating them as isolated factors. Third, the study introduces organisational support as a moderating variable in the relationship between digital skills and employee response to technological change. This means that the study does not only examine whether digital skills influence employee response; it also investigates whether the strength of this relationship depends on the level of organisational support available to employees.

The justification for using organisational support as a moderator is grounded in the Technology Acceptance Model (TAM). TAM explains that individuals are more likely to

accept technology when they perceive it as useful and easy to use. In the workplace, however, perceived ease of use and usefulness may be influenced by the organisational environment. Employees may possess digital skills, but their response to technological change can still be affected by the extent to which the organisation provides training, communication, technical assistance, managerial encouragement, and emotional reassurance. Organisational support can therefore strengthen the relationship between digital skills and employee response by improving employees' confidence, reducing uncertainty, and creating a positive climate for technology use. On the other hand, weak organisational support may reduce the positive effect of digital skills because employees may feel abandoned, pressured, or poorly prepared for change.

Against this background, the study sets out to explore the relationships between digital skills, organisational support and employee response to business technological change in a case study of Access Bank Plc. Drawing on the tenets of the Technology Acceptance Model (TAM), the study examines how employees' perceived digital competences and perceptions of organisational support determine their immediate behavioural as well as emotional responses towards digital transformation. This reframing from employee resistance to employee response allows this research to take a more balanced, human-centred approach that acknowledges both the disruption and possibility of technological change. The study will add an increasing body on Digital transformation of academic and digital theory for emerging economies with easily actionable evidence to assist workforces in cultivating positive employee engagement, adaptive learning and future work-ready organisations.

1.1 Research Questions

The purpose of this study is to examine how digital skills and organisational support influence employee responses to technological change within Access Bank Plc. It also seeks to determine whether organisational support moderates the relationship between digital skills and employee response, thereby shaping the overall adaptability of the workforce to digital transformation.

The study is guided by the following research questions:

1. To what extent do digital skills influence employee responses to technological change?
2. To what extent does organisational support influence employee responses to technological change?
3. How do digital skills and organisational support interact to shape employee responses to technological change?

Literature Review

The evolution of digitalisation has an impact on the world of organisation, which represents a gift to unprecedented opportunities and challenges for adaptability in the workforce. Digital transformation refers to the assimilation of digital technologies into the organisational processes and has become essential for competitiveness and survival (Parjanen, 2025). However, while technology moves at lightning speed, the evolution of human adaptability is slow by comparison. The factors which can determine the success of digital initiatives therefore are not only the sophistication (or lack thereof) of tools being implemented, but how well employees adapt to the experienced technological change. In transition

environments like Nigeria's banking sector, where digital system architectures are being forged and legacy systems remain dominant, grappling with the human aspect of digital transformation is key. By using a literature review approach, this paper examines the relationship of digital skills and organisational support with respect to employee response towards technology change from both local (Malaysia) and international studies.

Digital Skills and Employee Adaptation

An expanding compilation of empirical studies highlights the critical importance of digital skills in shaping workers' attitudes toward technological innovation. Ogueyi and Nwosu (2022) conducted a quantitative cross-sectional study using a structured Likert-scale survey among 276 employees from five commercial banks in Lagos State, Nigeria, using a structured Likert-scale questionnaire to measure digital literacy, openness to change, and perceived ease of use. Results showed a high positive correlation ($r = 0.68$, $p < 0.001$). This indicates that hybrid employees who self-perceive as digitally literate are likely to be more assured about their ability to use new systems and less defensive.

Likewise, Amanawa, Ebiegberi & Weriwoyingipre (2023) utilized data from 210 staff of different Nigerian institutions to investigate how development of digital competencies prepared the members towards technology acceptance. Their research showed that structured digital training programs have a significant positive impact on both self-efficacy and perceived complexity when it comes to new digital platforms. Moreover, qualitative responses we received from the interviews further emphasized that employees see digital up skilling as more than just a technical requirement; it is also an empowerment mechanism whereby their job security and career progression would be enhanced.

Conversely, Adeyemo and Oloyede (2021) reported that in institutions where access to digital training was sporadic or poorly funded, staff showed a fear of automation, which they viewed as a possible jeopardisation of job sustainability. Indeed, these empirical findings together provide compelling evidence that developing digital skills is not an isolated HR activity but one of the key strategic levers for organisational adaptability.

In conclusion, the reviewed studies show that digital skills play a significant role in shaping employee adaptation to technological change. Employees who possess strong digital literacy, confidence, and competence are more likely to perceive new technologies as useful, less difficult to use, and relevant to their work. This improves their openness to change and reduces fear or resistance. On the other hand, inadequate digital training and limited access to digital tools may create anxiety, uncertainty, and fear of job displacement among employees. Therefore, digital skills are not only technical abilities but also psychological enablers of confidence, flexibility, and positive adaptation in the workplace.

The view of this study is that digital skills should be treated as a strategic factor in employee response to technological change, especially in the banking sector where digital platforms, automation, artificial intelligence, and mobile banking systems are now central to daily operations. For employees of Access Bank Plc, digital competence can influence how quickly and positively they respond to new systems. However, digital skills alone may not be sufficient unless supported by continuous training, managerial encouragement, and adequate technological infrastructure. This implies that banks seeking successful digital transformation must invest not only in technology but also in the digital capacity of their employees.

2.2 Organisational Support and Change Readiness

In empirical research, Organisational support is shown as a moderating or mediating factor between technological introduction in one part and employee behavioural responses on the other. A cross-sectional survey of 350 bank employees from three major Nigerian financial institutions measured perceived organisational support (POS) using Eisenberger's POS Scale and resistance was measured using Oreg's Resistance to Change (RTC) Scale (Adeleye, Adewuyi, & Adebayo, 2021). Their regression analysis showed that perceived organisational support accounted for 46% of the variance on employees' readiness for technological change. The findings demonstrated that lower levels of resistance were predicted by continuous training, transparent communication and managerial empathy.

This is further supported by Olokundun, Falola, and Ibidunni (2022) who empirically investigated leadership support as well as employee training as enablers of digital readiness within the banking industry in Nigeria. They found that leadership communication and participative decision-making during digital rollouts helped develop employees' psychological safety and trust with each other reducing the organisational resistance. Those who felt that management was supportive were 1.8 times more likely to adopt new technologies willingly than those who believed they did not receive the same support.

Also, a large-scale study with 412 respondents across six Nigerian commercial banks conducted by Eze, Chinedu-Eze and Bello (2023) utilized SEM to determine the mediating role of organisational support between digital competence and resistance. Results demonstrated a significant decrease in resistance towards technological change ($\beta = -0.37$, $p < 0.01$) and increase in digital engagement with organisational support ($\beta = 0.42$, $p < 0.01$). This empirical evidence is consistent with global studies, for example, Al-Emran and Teo (2020), that identified similar moderating effects of the relevance of organisational support on technology adoption in Middle Eastern higher education institutions and supports the universality of the impact organisational support has on technology adoption.

In conclusion, the reviewed studies show that organisational support is a major determinant of employees' readiness for technological change. When organisations provide continuous training, transparent communication, participative decision-making, managerial empathy, and technical assistance, employees are more likely to feel psychologically safe and prepared to adopt new technologies. The evidence also shows that perceived organisational support reduces resistance by building trust, confidence, and a sense of inclusion during digital transformation. Therefore, organisational support does not only influence employee readiness directly; it can also strengthen the effect of digital competence on employees' willingness to adapt.

The view of this study is that organisational support is a critical condition for successful technological change in the banking sector. In Access Bank Plc, employees may possess different levels of digital skills, but their response to technological change will largely depend on whether the organisation creates a supportive environment for learning and adaptation. This justifies the treatment of organisational support as a moderating variable in this study. Where organisational support is strong, employees with digital skills are more likely to respond positively to technological change; where support is weak, even skilled employees may become uncertain, frustrated, or resistant. Thus, organisational support serves as a bridge between technological investment and employee readiness.

Employee Response to Technological Change

Employee response is defined as the spectrum of cognitive, emotional and behavioural reactions exhibited by employees faced with changes in their organisation (Oreg, 2021). It includes positive responses, like enthusiasm and acceptance and initiative and negative ones, including anxiety, skepticism and disengagement. This more expansive conceptualisation goes beyond the narrow emphasis on “resistance” to reflect the manners in which employees experience and make sense of technological change.

Existing literature provides evidence that in digital contexts, employee response is influenced by individual factors (e.g., digital competence, self-efficacy) and organisational conditions (e.g., leadership, training, and communication). Indeed, as PwC Nigeria (2023) indicated, approximately 40% of employees in banks are moderately hesitant or uncertain with regards to digital banking systems due to reasons such as limited confidence and ambiguous role expectations. EFInA’s (2022) Digital Financial Services Report echoed similar sentiments, noting that front-line employees are often the first to interact with mobile-based platforms, doing so in equal parts curiosity and apprehension, representing two sides of the same coin of human behavior towards change.

According to Ali et al (2021), leadership and communication in an organization are essential towards how employees respond. When leaders involve employees from the early stages of a transformation and clearly communicate their vision, employees are more likely to react with trust and collaboration. Eze et al. (2023) argue that psychological empowerment developed through organisational trust and untiring up skilling, re-constructive defensive responses to proactive ones. Therefore, employee attitude can be seen as a feedback tool indicating the level of organisational system readiness and support for digital transformation,

The Interplay between Digital Skills, Organisational Support, and Employee Response

Emerging research shows that digital skills and organisational support are not independent constructs that merely add up - they interact to determine the quality and direction of employee responses to technological change. Amanawa et al., (2023), argue that employees’ capacity is more related to their digital competence, while organisational support stays as an element of motivation and emotional resilience. Similarly, Olokundun et al., (2022) found that the effect of digital skills on employee outcomes is moderated by the level of organisational support, such that less digitally confident employees were less prone to negative responses when high organisational support was displayed.

And in the Nigerian banking industry, Eze et al. According to (2023), mega banks like Access Bank Plc and GT Bank that have a multilayered support system record better employee feedback on digital transformation than smaller financial institutions with limited training budgets. This coalescing of tech readiness and human scaffolding highlights a key message: digital transformation is not simply a technology initiative, but also an organizational process that hinges on employees’ perceptions, confidence and emotional investment. Organisations that combine both development of digital capabilities alongside human-centred means of supporting their people, are more likely to elicit positive reactions from all employees, innovate more successfully and maintain digital competitive advantage.

Theoretical Framework

The Technology Acceptance Model (TAM), developed by Davis (1989), is one of the most influential frameworks explaining how individuals accept and use new technologies. The model posits that two key cognitive perceptions Perceived Usefulness (PU) and Perceived

Ease of Use (PEOU), determine a person's attitude toward using a technology, which in turn influences their behavioral intention and actual system usage. Perceived usefulness refers to the degree to which an individual believes that using a specific technology will enhance job performance, while perceived ease of use refers to the extent to which one believes that using the technology will be free of effort. These perceptions are shaped by external variables such as training, prior experience, and individual competence. Over the years, TAM has been expanded and validated across various organizational contexts to explain employee acceptance, resistance, and technology utilization (Venkatesh & Davis, 2000; King & He, 2006).

In the context of Access Bank Plc's digital transformation, TAM offers a robust framework for understanding how employees' digital competence and perceived organisational support influence their responses to technological change. Employees with higher digital proficiency are more likely to perceive new technologies as easy to use and beneficial to their work, leading to positive behavioural and emotional responses. Conversely, those with limited digital literacy may view technology as complex or disruptive, resulting in anxiety or avoidance. Organisational support through training, transparent communication, and leadership empathy can mitigate these negative perceptions by enhancing perceived usefulness and confidence. Therefore, consistent with TAM, digital skills act as cognitive enablers, while organisational support functions as an environmental reinforcer. Together, they shape how employees evaluate, accept, and respond to technological innovations within the workplace.

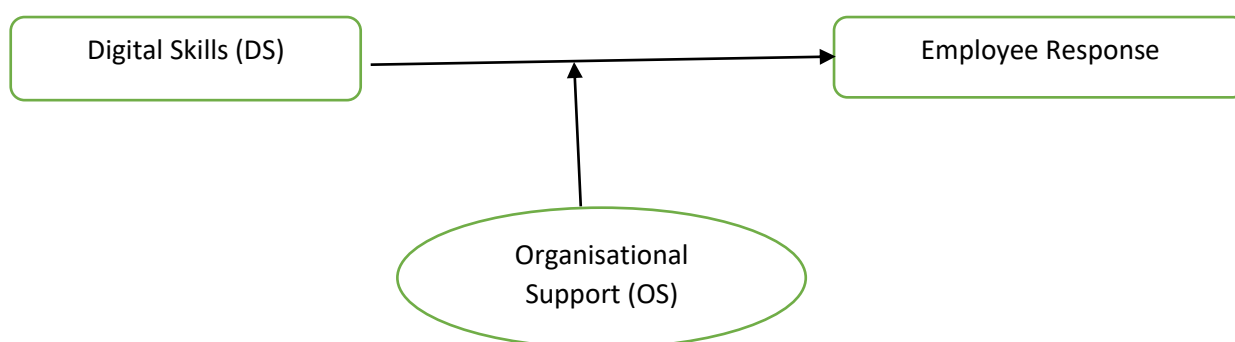


Figure 1: Research Model

Method and Materials

Research Design

This study utilized a quantitative cross-sectional survey design that is suitable to assess the associations between significant but measurable variables at a single point in time. This approach permits the testing of hypotheses developed from the Technology Acceptance Model (TAM) suggesting that cognitive inputs (digital competence, perceived usefulness, etc.) affect behavioral outputs (acceptance or resistance). This design was selected as it allows for statistical analysis of the contemporaneous relationship and predictive association between digital skills, organisational support and employee response to technological change within a genuine organisational context.

Population of the Study

Selected branches of Access Bank Plc in the South-West geopolitical zone, Nigeria serves as the target population for this study. Access Bank was selected because it has implemented extensive digital transformation efforts, including AI-driven customer services, mobile banking platforms, and internal automation systems, resulting in a variety of employee experiences with technological change. In its 2024 annual report, the bank notes that Access Bank has about 28,000 employees in corporate, retail, and operations divisions. In view of the varying levels of exposure, this study concentrates specifically on employees working in those departments that have been most affected by digital transformation, this is Information Technology, Retail Banking, Operations and Customer Service as these individuals directly encounter new technologies and mechanisms for support from the organisation.

Sample Size and Sampling Technique

The sample size was determined using Krejcie and Morgan's (1970) table for finite populations. Based on the study population of 28,000 employees, the minimum required sample size was 379 at a 95% confidence level. However, 400 copies of the questionnaire were distributed to account for possible non-response, incomplete responses, and improperly filled questionnaires. This ensured that the final valid responses would remain adequate for statistical analysis and generalisation. The study adopted a stratified random sampling technique. The strata were created based on the departments of the bank to ensure that different categories of employees were proportionately represented. Within each department, respondents were randomly selected to reduce selection bias and improve the representativeness of the sample.

Sources and Methods of Data Collection

Primary data were collected using a structured questionnaire, which was administered both physically and electronically (through Google Forms) to maximize participation. The questionnaire was segregated into four parts:

Section	Content	Description
A	Demographics	Age, gender, years of service, department
B	Digital Skills	Self-rated competence, ability to use new technologies, digital literacy
C	Organisational Support	Perceived training, communication, leadership, and resources
D	Employee Response	Cognitive, emotional, and behavioural dimensions of employee reactions to technological change

Respondents evaluated items on a five-point Likert scale from 1 = Strongly Disagree to 5 = Strongly Agree. The questionnaire was pre-tested on 30 employees from non-sampled branches for clarity and reliability.

Measurement of Variables

All measurement scales are adapted from previously validated instruments:

Variable	Number of Items	Source	Example Item
Digital Skills (DS)	5 items	Adapted from Ogueyi and Nwosu (2022); Amanawa et al. (2023)	"I am confident using new banking applications without supervision."
Organisational Support (OS)	5 items	Adapted from Eisenberger, Huntington, Hutchison, and Sowa (1986) Perceived Organisational Support Scale	"My organisation provides adequate training when new technologies are introduced."
Employee Response (ER)	5 items	Adapted from Oreg (2003) Resistance to Change Scale, modified to capture both positive and negative responses	"I am willing to explore and adapt to new digital tools introduced in my workplace."

These measures have been previously validated among organisational studies with Cronbach's alpha coefficients exceeding 0.80 demonstrating substantial internal consistency.

Method of data analysis

Data was analyzed using SPSS version 22 and SmartPLS 3.0. SPSS was used to conduct data cleaning, descriptive statistics, reliability testing and regression analysis to assess the direct effects of digital skills and organisational support on employee response to technological change. We used SmartPLS for Partial Least Squares Structural Equation Modelling (PLS-SEM) to examine the moderating role of organisational support, in addition to testing both the measurement and structural models. The use of SPSS (version 22) ensures statistical accuracy and clarity in preliminary analysis, while SmartPLS is justified for its strength in handling complex models, moderation effects, and non-normal data making it ideal for exploring the interrelationships among the study's variables.

Results and Discussion

As recommended by Hair, Hult, Ringle and Sarstedt (2017), the assumptions of normality and multicollinearity were met before the primary analysis was performed. The retrieved data were then processed through the Partial Least Squares modeling (SmartPLS). Hair et al. Specifically, in (2017), [30], the author recommended for a two-phase evaluation approach to validation and examination of the model utilized for this study, consisting of measurement models (referred as external models) and structural models (internal models).

Measurement Model

To ensure the reliability and validity of DAC (Digital Skills, Employee Response, Organisational Support) constructs used in this study the measurement model was necessary to be evaluated. As displayed in Table 1, the psychometric properties of all constructs were adequate, meeting due to recommended criteria for factor loadings, internal consistency reliability and convergent validity (Henseler et al., 2009; Hair et al. (2017).

Table 1: Measurement Model

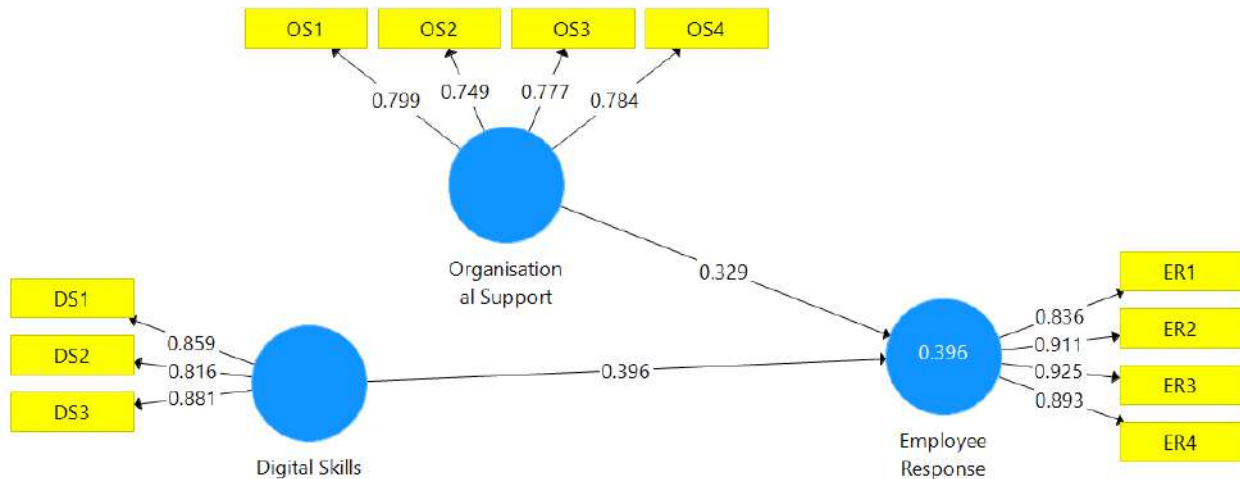
Constructs	Indicators	Outer Loadings	Cronbach's Alpha	Composite Reliability	Average Variance Extracted (AVE)
Digital Skills	DS1	0.86	0.82	0.89	0.73
	DS2	0.82			
	DS3	0.88			
Employee Response	ER1	0.84	0.91	0.94	0.80
	ER2	0.91			
	ER3	0.93			
	ER4	0.89			
Organisational Support	OS1	0.80	0.82	0.86	0.61
	OS2	0.75			
	OS3	0.78			
	OS4	0.78			

Individual indicator outer loadings varied from 0.75 to 0.93 above the minimum threshold of 0.70 as outlined by Hair, et al., (2019). This suggests that every observed item is a significant contributing factor of the latent construct it represents and thus, indicator reliability typically holds true. Additionally, the high loadings on all constructs presumptively reflect respondents' consistent responses across items intended to measure similar theoretical dimensions.

Regarding internal consistency, all constructs demonstrated Cronbach's Alpha and Composite Reliability (CR) quotients well in excess of the recommended boundaries of 0.70 (Nunnally & Bernstein, 1994). Digital Skills (alpha = 0.82; CR = 0.89), and Employee Response (alpha = 0.91; CR= 0.94), respectively, exhibited excellent internal consistency value]] corresponding to composite reliability values that confirm the adequacy of all constructs. Organisational Support showed similar satisfactory values ($\alpha = 0.82$, CR = 0.86), indicating that communicative empathy, communication and training consistency were closely related to each other among managers. These findings confirm that the measurement scales employed in this investigation effectively reflect the underlying constructs with minimal measurement error.

All Average Variance Extracted (AVE) values also met the recommended 0.50 threshold (Fornell & Larcker, 1981), confirming sufficient convergent validity. Each construct explains more than half the variance in its indicators. Of the constructs, Employee Response had the highest AVE (0.80), followed by Digital Skills (0.73) and Organisational Support (0.61). A high AVE for Employee Response indicates that there was a solid level of precision and conceptual detail in the way employees' cognitive, emotional and behavioural responses to technological change were measured. The AVE of 0.73 for Digital Skills demonstrates a

similar story in which the items assessing employee's competency, confidence and literacy in digital activities adequately loaded on one underlying factor.



Taken together, these results suggest that the instrument we employ in this study is statistically robust and conceptually coherent. The indices for reliability and validity highlight that the measures of Digital Skills, Organisational Support And Employee Response are unique but correlated constructs better able to explain how employees respond to technology changes. Moreover, the strong psychometric performance also validates that the construct underlying patterns identified in the dataset is suitable for prescribed structural model analysis using SmartPLS, where hypothesised relationships between constructs can be interpreted with confidence.

Also, in 2018 Duarte and Amaro built another methodology for the discriminant validity: the Heterotrait-multimethod (HTMT) matrix. According to (2017), Hamid, Sami and Sidek that the HTMT criterion has been proven more reliable than both standard Fornell-Larcker criterion and cross-loading in terms of discriminating validity. Consequently, HTMT matrix discriminant validity is assessed.

Table 2: Heterotrait-Monotrait Ratio (HTMT)

Constructs	Digital Skills	Employee Response	Organisational Support
Digital Skills			
Employee Response	0.60		
Organisational Support	0.52	0.50	

HTMT statistics are calculated based on the correlation of their construct, as shown in Table 2. The HTMT value means that discriminant validity is present in the reflective latent structure of this study as the given HTMT value is less than 0.85 which is also been suggested by (Hair et al., 2017).

Structural Model

Once the conditions of measurement model are met, structural model is assessed. The... Read more the first step in evaluating structural models is to examine theoretical relationships. More specifically, a bootstrapping of 353 sample instances was carried out in order to identify the significance between path coefficients for associations (Hair et al., 2017).

Table 3: Hypotheses Test

R/Ship	Sample		T Statistics	P Values
	Mean (M)	Standard Deviation		
Digital Skills -> Employee Response	0.40	0.04	10.24	0.00
Organisational Support -> Employee Response	0.32	0.04	8.57	0.00
DS*OS -> Employee Response	0.10	0.04	2.44	0.02

The structural model results in Table 3 reveal support for empirical hypotheses regarding the associations among Digital Skills (DS), Organisational Support (OS) and Employee Response(ER) to technological change. All hypothesised paths show a positive and a statistically significant effect, thus concluding that employees' digital competence and perceived organisational support are significant predictors of employee behavioural and emotional reaction to technological transformation in Access Bank Plc.

The relationship between Digital Skills and Employee Response is also very positive ($\beta = 0.40$, $t = 10.24$, $p = 0$), thus showing that this model has predictive relevance for this endogenous construct. Given that, as per the rule of thumb proposed by Fornell and Cha (1994) is $Q^2 > 0$ suggests model has strong predictive validity such that it could predict the employee responses based on observed patterns of digital skills & go through organisational support. This finding lends credence to the notion that the model not only reproduces fit well in sample but also maintains predictive validity beyond simple associations.

The combination of R^2 , f^2 and Q^2 values confirm that the suggested conceptual framework provides a valid and holistic account of employee behaviour in digital transformation environment. Slightly above satisfactory explanatory power along with meaningful effect size and positive predictive relevance indicates that Employee Response is structurally determined around individuals as well as organizational context.

Conclusion and Recommendations

Overall, the results from structural model provided strong empirical support for all proposed hypothesized relationships in this study and validated the proposed conceptual framework linking Digital Skills, Organisational Support and Employee Response to technological change at Access Bank Plc. The findings reveal the joint influence of both individual capability and organisational context on how employees assess, make sense of and acclimatize to digital transformation initiatives.

The primary conclusion reflects that Digital Skills positively influence Employee Response ($\beta = 0.40$, $t = 10.24$, $p < 0.001$). That means the more digital competent an employee is, the less he or she faces difficulties with reading or understanding technology. They tend to see

technology as a good thing and are less likely to be afraid of it, or turn against it. This result is in accordance with the Technology Acceptance Model (TAM) which assumes that employees' technology skill level determines perceived usefulness and ease of use, thus leading to positive behavioural intentions when adopting technologies.

The other finding confirms that Organisational Support is a key predictor of Employee Response ($\beta = 0.32$, $t = 8.57$, $p < 0.001$). It emphasizes that a facilitating working atmosphere including effective communication, continuous training and also leadership empathy fosters positive employee behavior towards change. When employees feel valued and enabled, they respond to digital transformation with trust, enthusiasm and engagement. Therefore, this finding highlights and strengthens the Perceived Organisational Support (POS) theory (Eisenberger et al., 1986), which reiterates an employee's response to organisational support by fitting in with the organisation through higher adaptability and commitment.

Findings also establish a strong moderating effect of Organisational Support on Digital Skills and Employee Response ($\beta = 0.10$, $t = 2.44$, $p = 0.02$). This suggests that the role of digital competence on employee response is strengthened in the presence of supportive organisational enablers. This suggests that from an operational perspective employees can engage in positive behaviours towards their organisation given a sufficiently perceived level of institutional support, even with average levels of digital literacy. This synergy confirms that technological readiness needs emotional and managerial support to help achieve sustainable transformation outcome.

Recommendations

Continuous improvement of digital training programs tailored specifically for employees to develop their skills at various levels of technology literacy should be the focus for Access Bank. As the old saying goes, if you build it they will come, and that is true when it comes to digital confidence as we hope eliminating fear will prepare us for future technologies.

But the bank can only institutionalize and strengthen this agility in technological transitions by introducing systemic shifts - training workshops, mentorships and responsive technical support.

Leaders can engage employees early in the process of change, share these transformation goals transparently, and communicate clearly how technology will augment - not replace - their roles.

By fostering an environment that encourages innovation, rewards adaptability and promotes open lines of communication, organisations can build a culture that welcomes change instead of fighting against it.

Implication of Findings

Theoretical Implications

The findings of this study have important theoretical implications for the literature on digital transformation, technology acceptance, and employee response to technological change. First, the study extends the Technology Acceptance Model (TAM) by showing that employee response to technological change is not determined only by perceived usefulness or perceived ease of use, but also by employees' digital skills and the level of support provided by the

organisation. This suggests that technology acceptance in the workplace should be understood from both individual and organisational perspectives.

Second, the finding that digital skills positively influence employee response to technological change strengthens the argument that digital competence is a key human factor in technology acceptance. Employees who possess strong digital skills are more likely to respond positively to new technologies because they feel more confident, capable, and prepared to use digital systems. This contributes to existing knowledge by positioning digital skills as an important predictor of adaptive employee behaviour in the banking sector.

Third, the study contributes theoretically by introducing organisational support as a moderating variable. This shows that the relationship between digital skills and employee response may become stronger when employees perceive that their organisation provides adequate training, communication, infrastructure, and managerial encouragement. Therefore, the study adds to the literature by demonstrating that organisational support creates the enabling condition under which digital skills can produce stronger positive responses to technological change.

Practical Implications

The findings also have practical implications for Access Bank Plc and other banks in Nigeria. First, management should invest in continuous digital skills training for employees. Since digital skills improve employee response to technological change, banks should organise regular training programmes on digital banking platforms, cybersecurity awareness, artificial intelligence tools, data systems, mobile banking applications, and other emerging technologies used in banking operations.

Second, the study shows that organisational support is essential for successful digital transformation. Bank management should not introduce new technologies without providing adequate support systems. Employees should be given clear communication, practical demonstrations, technical assistance, and opportunities to ask questions before and during technology implementation. This will reduce fear, uncertainty, and resistance among employees.

Third, managers should create a supportive work environment that encourages learning and adaptation. Supervisors and departmental heads should show empathy, involve employees in digital change processes, and provide feedback when employees experience difficulties with new systems. This is important because employees are more likely to accept technological change when they believe that the organisation values their contribution and supports their adjustment.

Finally, the findings imply that digital transformation should not be treated as a purely technical project. For banks to achieve sustainable innovation and competitiveness, they must combine investment in technology with investment in people. Access Bank Plc and similar financial institutions should therefore align digital transformation strategies with employee development, organisational communication, and change management practices.

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FACTORS AFFECTING WOMEN'S CONTRIBUTION TO DECISION MAKING TOWARDS COOPERATIVE DEVELOPMENTS IN YEWA DIVISION, OGUN-STATE, NIGERIA

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Abstract

The study examined factors affecting women contribution towards decision making cooperative development in Yewa Division of Ogun-State Nigeria. Data was gathered through a well-structured questionnaire administered to one hundred and twenty (120) cooperative women using a two-stage random sampling technique. Both descriptive and inferential statistics were used to analysed collected data. The results showed that respondents were economically active range, with mean household size of six (6) individuals. The results also revealed that majority (55.0%) of the respondents had been members between 5 and 11 years or more and they were also literate meaning that they can read and write. The findings also showed that cooperative women had family responsibilities and obligations to be fulfilled within their family. Age, education, religion, marital status, household size and gender exhibited significant at 1%, 5% and 10% significance level respectively. Gender equality, adequate involvement in cooperative decision making process by cooperative women, reorganisation of women gender roles in cooperative organization, high self-confidence of women, provision of cooperative education to cooperative women and provision of adequate and frequent cooperative information to women were identified as important strategies and agreed as solution to some challenges encountered by the respondents. The study recommended that, government should empower cooperatives financially to ensure that cooperative societies have sufficient funds to provide loans to their members, with low interest rates on loans to incentivize members to access credit facilities to facilitate their interest of cooperative women to contribute to cooperative development. Furthermore, cooperative should enlighten, educated and encouraged cooperative women in order to contribute to cooperative development. Constraints facing cooperative women on contribution to decision making towards cooperative development should be addressed properly.

Keywords: Cooperative, Decision making, Development, Gender, Participation, Women

Introduction

Rural women's contribution to individual households and communities has improved local and global economies. The participation of rural women in cooperative societies has immensely contributed to achieving better incomes through their various activities and rural

livelihoods (Vercillo, 2016; Jabeen *et al.*, 2020). It has been established by many global researches on the important role of rural women, in improving the household economy and general wellbeing (Jaka and Shava, 2018). In Nigeria, 60 percent of her farm labours comprise the rural women who produce more than 90 percent of the nation's food supply (Linus, 2018). The rural women are involved in different categories of cooperative ventures (Onyejiuwa, 2016; Augonus *et al.*, 2017), which enhances their access to common production resources, leadership skills and resilience. It increases their individual capacities, access to markets and economies of scale as well as facilitate increases in their incomes (Maleko and Richard, 2015, Thomas-Woldu and Marie-Katherine, 2015; Onyejiuwa, 2016).

Cooperative activities generally have remained the most viable instrument for rural development in almost all the developing countries of the world (Akpama and Isaac, 2018). The role of rural women in cooperative societies may be seen as a means to improve the household well-being objective (International Labour Organization, 2013). Despite the huge benefit of cooperatives society, dominant gender inequalities affect the participation of members, especially when the cooperative societies are controlled and managed by men. Thomas-Woldu and Marie-Katherine, (2015) noted that there are incidents of poverty among women participating in cooperative societies which manifest in hunger, poor feeding, low income and unimproved quality of life. However, some women have been documented to be strong players in cooperative activities towards improving their household welfare.

In this vein, this study tries to provide answers as to what determines women participation in cooperative societies and the consequences of their cooperative membership on their households and the society in general. Cooperatives are member-owned and democratically governed organizations that work toward achieving common economic, social, and cultural needs. As inclusive and participatory entities, they hold immense potential to advance women's empowerment by providing them with opportunities for economic independence, decision-making, and social recognition. Women's empowerment and their equal participation across all spheres of society, including decision-making processes and access to opportunities, development, and resources, have been highlighted in the Beijing Declaration (ILO, 2019).

It is widely believed that cooperatives form indispensable component of economic empowerment and development. Cooperative organizations do serve as the foundation for bringing together relatively weak members of the society for the purpose of enhancing their individual capacities/capabilities for collective good (Alkali, 2011). Although women's contribution to their households, food production and national economies is immense, it has not been translated in to better access to resources or decision-making powers. As a result, women remained to be the poorest of the poor constituting 70% of the global poor (Women affairs, 2014 cited in Berhan, 2015).

In Ethiopia, women play a vital role in the community by taking care of all social activities. However, they do not enjoy the fruits of their labor and suffer from political, economic, social and cultural marginalization (FDRE, 2014). The participation of women in qualified jobs and related fields is at its lowest level. Gender integration in cooperative development is also essential because active and equitable participation of members, both men and women, is a necessary condition for sustainable cooperative development. Cooperatives will benefit from the under-utilized half of the world's human resources by enhancing women's productive capabilities. The active involvement of women will make cooperative economically and politically strong. By involving more women in decision making and

implementing within the cooperative movement, one will enhance the prospects of cooperatives, diversify activities and fortify the cooperative movement. It is significant that the involvement of more women in cooperatives will broaden the scope of cooperatives and improves their social role by empowering them to decision-making level (Desalew, 2019).

A number of experiences have shown that initiatives taken by women in cooperatives have accelerated the progress and change of socio-economic situations both for women and the society at large (Daman, 2013). Cooperatives are able to promote economic and social development because they are commercial organizations that follow a broader set of values than those associated purely with the profit motive. Cooperatives play an important role in job creation by directly providing self-employment to members and service provision for non-members. Enterprise development and particularly the promotion of small and medium enterprise, has been adopted as a prerequisite and a strategy for job creation and economic growth in a large number of countries (Essien, 2015).

In some cultures, women are restricted from conducting business independently or without their husbands' consent. This poses a serious challenge to participation in cooperative activities. Even though in some cases women's legal rights may be stipulated in a cooperative they may not necessarily be enforced or they may be superceded by customary law. It is in line with this view that Ashanti (2013) observed that lack of social, economic and legal rights explains women's low participation in cooperative decision-making and leadership positions. Since cooperatives, like other forms of enterprise, reflect the broader society in which they operate, it is not surprising that gender imbalances do exist, despite the cooperative principles and values that proclaim equality and equity. Among the most important gender issues in cooperatives today are women's low level of active participation and their under-representation in decision-making and leadership. (Idrisa *et al.*, 2017), women, especially in developing countries, are confronted by formidable constraints that block their active participation in cooperatives.

First and foremost among these constraints is the traditional role of women in society and the prevalent misconception that women's reproductive and domestic responsibilities constitute their main role. This places women at the margins of the cooperative business world. It restricts their choice of economic occupations and opportunities and is the root cause of their heavy work burden and time constraint. Women's lack of access to resources is another major stumbling block. It affects both their participation in existing cooperatives and the setting up of new ones. Without independent assets, it is also difficult for women to invest in their own right in cooperatives. In many parts of Nigeria, women lack access to land, credit or production inputs; their level of education is lower than men's and their business experience and knowledge of cooperatives is very often limited (Sivaram, 2020).

Objectives of the Study

The general objective of this study is to examine factors influenced women contribution to decision making to cooperative development in Yewa Division of Ogun-State Nigeria. The specific objectives are to: describe the socio-economic characteristics of cooperative women, describe socio-economics factors affecting women contribution to decision making in cooperative development and identify problems facing cooperative women in decision making in cooperative development with suggested possible solutions in the study area.

Literature Review

The Concept of Cooperative Participation

All over the world, women have been acknowledged for their complementary roles in supporting their husbands and providing livelihood for their families. They contribute in a multitude of ways, through different livelihood strategies, to lifting their families and communities out of poverty. They work as unpaid and own-account or self-employed on-farm and non-farm labourers; as on and non-farm wage labourers for others in agriculture and agro-industry; as entrepreneurs, traders, and providers of services; as leaders; as technology researchers and developers; and as caretakers of children and the elderly (FAO 2017).

Similarly, Udemezue and Odia (2021) affirmed that women are deeply engaged in food production and processing, yet they are frequently excluded from decision-making and access to productive resources. This gender disparity limits their productivity and economic empowerment. Okafor (2016) noted that women have become critical stakeholders in the economic and social advancement of their families and societies. In the quest for coping with myriads of household problems, it has been observed that women in Osun state devise their own mechanisms using locally formed associations or groups such as village savings and loans (Ajo), religious organisations, garri processors associations, tomato sellers' associations, hair dressers associations and others. These are self-initiated, self-managed, or unregistered but help to meet their demand for financial services and ultimately improve their standard of living. Through credit and thrift societies, agricultural processing groups, and multipurpose cooperatives, women are not only contributing to their families' livelihoods but also strengthening community resilience and social cohesion (Ajaero *et al.*, 2019). Despite these contributions, there remains a significant gap in empirical research that quantifies and qualifies the actual impact of women's participation in cooperatives on rural household welfare.

International Cooperative Alliance (ICA, 2015) defines cooperative as an autonomous association of persons unified voluntarily to meet their common needs through a jointly-owned and democratically controlled enterprise. It is a business enterprise that aims at complete identity of the component factors of ownership control and use of services (Nweze, 2012). There are various forms of such societies and notable of which is agricultural cooperatives.

Agricultural cooperative is a group of farmers who pool their resources together in certain area of activity to facilitate optimal production through efficient use. This pooling of resources include joint purchase of farm inputs like seed, farm machinery, aiding members morally and financially during cultivation and seeking marketing channels for farm products to ensure better and fair prices. The purpose of forming cooperatives is to create a secured environment in terms of food security and the improvement of the standard of living among other members of the community. Agricultural co-operatives play important role in the development of agriculture in industrialized countries as suppliers of farming requisite, marketers of agricultural commodities and providing services such as storage and transport (Msimango & Oladele, 2013).

Agricultural cooperative enhance producers bargaining power in the marketplace, reduce costs by pooling capital and resources through cooperative enterprises, and make expensive services, such as marketing very accessible. Participation into agricultural cooperative

societies help women farmers to get access to loan or credit, acquire knowledge about new technologies or farming skills to help minimize farming challenges. Therefore in most places farmers form or participate in agricultural co-operatives to overcome barriers such as poverty, market failure, missing services, decreased income, reduced transaction costs with traders and contribute to community development. Women's participation refers to the active involvement of women in all spheres of affairs such as economic, socio-cultural, environmental, and political activity and their role in decision-making and empowerment (Tasew, 2011).

In addition to this, Tasew (2011) report shows that women account for only 23.9% in technical and professional fields most of who work on tiresome, low paid and unpaid jobs, and women have much poorer access to school and training facilities, thus frequently lack the necessary skills for active participation in cooperative decision-making.

Empirical review

Echukwu and Nwankwo (2021) examined the women participation in agricultural cooperatives has not been adequate and this has been attributed to some social and economic challenges. This paper examined the socio-economic determinants of women participation in agricultural cooperatives in Kogi State, Nigeria. Survey research design was adopted. The population was six thousand and forty-four (6,044), registered members of women agricultural cooperatives in the Kogi State, and a sample size of three hundred and seventy-five (375) was generated using Taro Yamane formula. Multi-stage sampling technique employed. Structured questionnaire was the major instrument for data collection. Data were analysed using frequency, percentage, mean ratings and multiple regression analysis. The results showed that social factors, such as social migration, sustained social inequality, discouragement on cooperative leadership, domineering gender orientation of men and gender gap caused about 75% variations on women participation in agricultural cooperatives in the State. It was again found that economic factors, such as inadequate finance, pressure on loan repayment, lack of credit for agricultural development, administrative delay of getting credit and undue interest charges caused about 68% variations on women participation in agricultural cooperatives in Kogi State. Therefore, this paper concluded that women participation in agricultural cooperatives in the State is significant but low and this is as a result of the identified socio-economic factors.

Theoretical Review

Feminist theory

The radical feminist theory, which guides this study, explains how revolution change can offer the possibility. It advocates on how women should fight for their rights and achieve their goals. The theory recognizes the pervasive influence of gender division on social life and tries to understand women's oppression and the structures in society that espouse this oppression and subordination. The feminist perspective looks at the many similarities between the genders and conclude that women and men have equal potential from individual development. Differences in the realization of that potential therefore must result from external imposed constraints and from the influence of social institutions and values (USAID, 2012). Feminist theorists have also started to question the differences between women, including how race, class, ethnicity and age intersect with gender. Feminist theory is mostly concerned with giving a voice to women and highlighting the various ways women have contributed to society. Radical feminist theory identify physical violence as being at the base

of patriarchy, but they think that patriarchy can be defeated if women recognize their own value and strength, establish a sisterhood of trust with other women, confront oppression critically, and from female separatist networks in the public spheres.

Method and Materials

Area of Study

The study was carried out in Yewa division of Ogun State, Southwestern Nigeria. The Egbado, now Yewa, are a clan of the Yoruba people and inhabit the eastern area of Ogun West Senatorial District, Ogun State, in south-west Nigeria, Africa. In 1995, they changed their name to Yewa. Yewa clan now comprises 4 local Governments namely: Yewa-South, Yewa-North, Imeko-Afon and Ipokia while the Ado-Odo/Ota LGA forms the 5th Awori part of the senatorial district. Yewa division was one of four (4) in Ogun-State. Ogun state lies within latitudes $6^{\circ}7'7.9''N$ and $7^{\circ}8'9.8''N$ and longitudes $2^{\circ}8'7.1''E$ and $4^{\circ}6'2.9''E$. Yewa division comprises of varying dialects of the Yoruba language. Yewa deals in traditional arts, carving, sculpture, and poultry keeping amongst others. The State covers a land mass of 610km^2 and the annual rainfall distribution is 1010-2020mm. The mean temperature is 75°F . Farmland is rich in humus and the soil type is loamy with a pH range of 5.5 - 6.5. it has a total population of 1,545,560. It shares an international boundary with the Republic of Benin to the West (NPC, 2006).

Method and Sources of data Collection

The study employed both primary and secondary sources of data. Primary source involved the use of well-structured questionnaire to obtain relevant information from respondents (cooperative women) in the study area. The secondary data was obtained from journals, articles, textbooks and other related publications. Both descriptive and inferential statistics were used to analysed the data. Descriptive statistical tools, includes frequency distribution tables, mean, and percentage, was used to analysed socio-economics characteristics of cooperative women, identify problems faced cooperative women in decision making and possible solution to the identified problems. Inferential statistic such as linear regression was used to analysed the influence of socio-economics factors in decision making on cooperative development by women cooperators.

Sampling Technique

A two-stage random sampling technique was used for selecting the respondents for the study. There are four divisions in Ogun state namely Egba division, Yewa division, Ijebu division and Remo division. Yewa division was considered for the study. Yewa division comprises of five local governments namely Yewa-South, Yewa-North, Imeko-Afon, Ipokia and Ado-Odo/Ota local government. Two local government areas namely Yewa-North and Yewa-South was randomly selected where five (5) towns/ communities in each of the three local government areas purposely selected and twelve (12) respondents in each selected towns to make a total of 120 respondents.

Examine Effects of Socio-economics Factors on Cooperative Women Contribution Towards Cooperative Development

Linear regression was used to determine effects of socio-economic characteristics on cooperative women contribution towards cooperative development.

Specification Model

$$Y_i = b_0 + b_i X_i + \varepsilon_i$$

Where:

Y_i = Contribution of women towards cooperative development

Simple linear form:

$$Y_i = \beta_0 + \beta_1 X_1 + \beta_2 X_2 + \beta_3 X_3 + \beta_4 X_4 + \beta_5 X_5 + \beta_6 X_6 + \beta_7 X_7 + \beta_8 X_8 + \beta_9 X_9 + \varepsilon_i$$

X_1 = Age (years)

X_2 = Sex

X_3 = Education attainment (years)

X_4 = Household size (numbers)

X_5 = Cooperative membership (years)

X_6 = Religion

X_7 = Occupation

X_8 = Marital status

X_9 = Monthly income (₦)

ε_i = Error term

Socio-economic Characteristics of their Respondents

Regarding the age distribution 12.5% were less than 21 years old, 54.2% aged between 21-40 years, 25.0% were in the 41-60 age bracket, while only 8.3% were 61 and above. This implied that majority less than (70%) of the respondents were agile and energetic. This findings is agrees with (Shittu *et, al.*, 2024), who asserted that majority of cooperative women were youthful and agile to work productively. In terms of marital status of the respondents revealed that 30.0% were single, 67.3% were married, while only 1.7% were widowed, showed that majority (70%) of them had family responsibilities such as child caring, house caring etc. Table 1, showed that 83.3% were Christians, 12.5% practiced, while only 4.2% belief in traditional religion. This showed that there is no religious discrimination among them. In term of educational attainment among cooperative women, 12.5% had no formal education, 20.8% had primary education, 51.7% had secondary education, and 15.0% had tertiary education. This revealed that majority of the respondents had ability to read and write. This findings is not in agreement with Aris, (2022) proved that majority of women were illiterates. In terms of membership duration, 45.0% had been members for less than 5 years, 30.0% for 5-10 years, and 25.0% for 11 years or more, this revealed that majority (55.0%) of them had been members between 5 and 11years or more. Partaining to monthly income, 36.7% earned less than ₦100,000 per month, 23.3% realized between ₦101,000 and ₦300,000, 16.7% obtained between ₦301,000 and ₦600,000, while 15.0% earned between ₦601,000 and ₦1,000,000, while remaining 8.3% earned a monthly income exceeding ₦1,000,000. In relation to household size, 41.7% had less than 5 persons, 33.3% had 6-9 members, and 25.0% had 10 or more members with average of 6 persons as households members. This findings revealed that the cooperative women-folks maintain moderate households in the study area. The result concured with (Agbalajobi, 2019) who asserted that between 5 and 7 persons in a family maintain moderate household size.

Table 1: Distribution of Respondents by their Socio-economic characteristics (N=120)

Variables	Options	Frequency	Percentage	Cumulative percentage	Average
Age	< 21 years	15	12.5	12.5	
	21-40 years	65	54.2	66.7	
	41-60 years	30	25.0	91.7	
	61 years & above	10	8.3	100	31 years
Marital Status	Single	36	30.0	30.0	
	Married	82	68.3	98.3	
	Widowed	2	1.7	100	
Religion	Christianity	100	83.3	83.3	
	Islam	15	12.5	95.8	
	Traditional	5	4.2	100	
Education attainment	No formal education	15	12.5	12.5	
	Primary	25	20.8	33.3	
	Secondary	62	51.7	85.0	
	Tertiary	18	15.0	100.0	
Years of membership	< 5	54	45.0	45.0	
	5-10	36	30.0	75.0	
	11 and above	30	25.0	100	8 years
Monthly income (₦)	< ₦100,000	44	36.7	36.7	
	₦101,000- ₦300,000	28	23.3	60.0	
	₦301,000- ₦600,000	20	16.7	76.7	
	₦601,000- ₦1,000,000	18	15.0	91.7	
	Above ₦1,000,001	10	8.3	100	₦150,201
Household size	< 5	50	41.7	41.7	
	6-9	40	33.3	75.0	
	10 and above	30	25.0	100	6 persons
Total		120	100		

Source: Field Survey, 2025

Socio-economics Factors Affecting Women Contribution to Decision Making Involvement towards Cooperative Development

The results shown that six (6) out of nine (9) variables that were regressed to measure effects of socio-economic characteristics factors affecting women contribution to decision making involvement towards cooperative development were statistically significant. The R^2 from the regression function estimated was 0.815 which shown that the value of 81.0%. The estimated R^2 value showed that 81% of the variations were explained by the explanatory variables included in the model which the remaining 19% value were unexplainable variables. Age, education, religion and marital status were statistically significant at 1% significance level. Household sizes and gender exhibited significance level at 5% and 10% significant respectively while monthly income, cooperative membership and occupation were not

significant. This implied that the more cooperative women were education and exposure, the more they will have capability or ability to contribute positively towards cooperative development. The results also revealed that numbers of years of the women stayed in cooperative societies had no effect on their contribution in decision making towards cooperative development.

Table 2: Distribution of Effects of Socio-economics Characteristic on Cooperative Women in Decision Making on Cooperative Development

Vairables	Regression Coefficient	Standard Error	T- Value
Constant term	1.445	0.667	4.222***
Gender	1.231	0.011	1.731*
Age	3.132	0.105	7.056***
Formal education (years)	1.018	-0.125	- 2.610***
Household size	0.340	0.187	2.120**
Monthly Income (₦)	2.054	1.956	0.675
Cooperative Membership (years)	0.349	0.660	0.555
Religion	0.888	0.114	6.770***
Occupation	1.600	1.011	1.111
Marital status	2.900	0.811	3.214***
Adjusted R = 0.7911			
R-square = 0.815			
F- Statistics = 78.991***			
Df ₁ = 117			
Df ₂ = 3			

Source: Field Survey, 2025. Asterisk *, ** & *** represent 10%, ** 5%, *** 1% Significance levels respectively.

Problems Facing Cooperative Women in Decision Making in Cooperative Development

The results showed the problems facing cooperative women in decision making in cooperative development in the study area. The primary constraints identified was religion belief (78.3%), gender inequality (66.7%), multiple domestic responsibilities of women (65.%), failure to recognize women gender roles in cooperative (62.5%), negligence of women in cooperative decision making involvement (55.8%), lack of cooperative information (41.7%) and low-self-confidence of women were ranked 1st, 2nd, 3rd, 4th, 5th and 6th position respectively. While patriarchy nature of society (39.2%) was ranked 8th, culture and traditions (34.2%) ranked 9th position, limited cooperative education (30.0%) was also placed 10th position and social problems (27.5%) was ranked the list as 11th. The constraints above positioned from 8th, 9th, 10th and 11th were all considered as secondary constraints to cooperative women in decision making process involvement in cooperative societies. The religious beliefs, multiple domestic responsibilities, culture and traditions, social problems amongst others were constraints facing cooperative women in decision making involvement on cooperative development. Women had strong belief to attend religion occasion rather than present in cooperative and contribute in decision making process for cooperative development because they believe so much in religion gathering, women preferred to think about their enterprises rather than thinking about involving in decision making process simply because they see it as wasting of their precious time which they supposed to use for their ventures to make more profit.

Table 3: Distribution of Problems Faced Cooperative Women in Decision Making on Cooperative Development

STATEMENT	Yes		No		MEAN	RANKED
	F	%	F	%		
Gender inequality	80	66.7	40	33.0	4.03	2 nd
Religion belief	94	78.3	26	21.7	4.12	1 st
Failure to recognize women gender roles in cooperative	75	62.5	45	37.5	3.81	4 th
Multiple domestic responsibilities of women	78	65.0	42	35.0	3.90	3 rd
Lack of co-operative information	50	41.7	70	58.3	3.10	6 th
Negligence of women in cooperative decision making involvement	67	55.8	53	44.2	3.53	5 th
Patriarchy nature of society	47	39.2	73	61.8	2.77	8 th
Limited cooperative education	36	30.0	84	70.0	2.01	10 th
Culture and traditions	41	34.2	79	65.8	2.44	9 th
Low self-confidence of women	50	41.7	70	58.3	3.10	6 th
Social problems	33	27.5	87	72.5	1.84	11 th

Source: Field Survey, 2025.

Mean scores of Possible Solutions to some Challenges Faced Cooperative Women in Decision Making

Gender equality, Adequate involvement in cooperative decision making process by cooperative women, recognition of women gender roles in cooperative organization, high self-confidence of women, provision of cooperative education to cooperative women and provision of adequate and frequent cooperative information to women were really suggested and agreed as solution to some challenges encountered by the respondents as reviewed. This findings agrees with (Shittu *et al.*, 2024) who claimed that if constraints facing women in cooperative societies could be addressed properly by women will be more useful in cooperative societies' development. .

Table 4: Distribution of Mean scores of Possible Solutions to Some Challenges Cooperative Women in Decision Making Towards Cooperative Development

SOLUTIONS	MEAN RESPONSE	RANKE D	DECISIO NS
Gender equality	2.00	1 st	Agreed
High self-confidence of women	1.19	4 th	Agreed
Recognition of women gender roles in cooperative organization	1.72	3 rd	Agreed
Adequate involvement in cooperative decision making process by cooperative women	1.90	2 nd	Agreed
Provision of adequate and frequent cooperative information to cooperative women	1.06	6 th	Agreed
Provision of cooperative education to cooperative women	1.17	5 th	Agreed

Source: Field Survey, 2025.

Conclusion and Recommendations

The majority of the respondents were in their prime years, strong, agile and energetic. The marital status of the respondents revealed that majority over 70% of them were married, signified that they had family responsibilities, with an average of 6 persons per household. The results also revealed that majority of the respondents were educated meaning that they can read and write. The estimated R^2 value showed that 81% of the variations were explained by the explanatory variables included in the model. Out of nine (9) regressed six 6 were statistically significant at 1%, 5% and 10%. It was also disclosed that the primary constraints identified includes religion belief (78.3%), gender inequality (66.7%), multiple domestic responsibilities of women (65.%), failure to recognize women gender roles in cooperative (62.5%), negligence of women in cooperative decision making involvement (55.8%), lack of cooperative information (41.7%) and low-self-confidence of women were ranked 1st, 2nd, 3rd, 4th, 5th and 6th position respectively. Therefore the study recommended that, government should empower cooperatives financially to ensure that cooperative organizations have sufficient funds to provide loans to their members, with low interest rates on loans to incentivize members to access credit facilities because timely access to credit will facilitate their interest to contribute to cooperative development. Cooperative should enlighten, educate and encourage cooperative women in order to contribute immensely to cooperative development beyond the reasonable doubt. All constraints facing cooperative women in decision making involvement towards cooperative development should be properly addressed.

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SELF-EFFICACY, SUBJECTIVE NORM, AND PERCEIVED BEHAVIOURAL CONTROL AS PREDICTORS OF ENTREPRENEURIAL ENGAGEMENT: THE MODERATING ROLE OF ENTREPRENEURIAL INTENTION

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Abstract

Despite increasing investment in entrepreneurship education and youth empowerment programmes in Nigeria, entrepreneurial engagement remains relatively low, limiting the contribution of entrepreneurship to employment generation and economic development. While previous studies have largely focused on entrepreneurial intention, limited attention has been given to the psychosocial factors that drive actual entrepreneurial engagement. This study therefore investigates self-efficacy, subjective norm, and perceived behavioural control as predictors of entrepreneurial engagement, with a particular focus on the moderating role of entrepreneurial intention. A cross-sectional survey design was employed, and data were collected from 272 SMEs owners and managers using structured questionnaires. Structural Equation Modeling (SmartPLS Version 4) was used to test the direct and moderating relationships among the constructs. The findings reveal that entrepreneurial intention, perceived behavioural control, self-efficacy, and subjective norm significantly and positively predict entrepreneurial engagement. Entrepreneurial intention emerged as the strongest predictor of engagement, emphasizing the importance of commitment and readiness to act. Perceived behavioural control significantly strengthens the intention–engagement relationship, while self-efficacy negatively moderates this relationship, suggesting that extremely high confidence may reduce reliance on intention when engaging in entrepreneurship. Subjective norm positively affects engagement but does not significantly moderate the intention–engagement link. The model explains 61.2% of the variance in entrepreneurial engagement, indicating substantial predictive power. The study concludes that entrepreneurial engagement is shaped by a combination of individual capabilities, social influences, and personal intention.

Keywords: Entrepreneurial Engagement, Entrepreneurial Intention, Perceived Behavioural Control, Self-efficacy, SMEs, Kaduna State, Subjective Norm,

Introduction

Nigeria, often referred to as the "Giant of Africa," is home to one of the largest youth populations in the world. As of 2022, over 120 million Nigerian youths were unemployed,

and youth unemployment was projected to exceed 44% by 2024 (National Bureau of Statistics, 2020; Ita & Bassey, 2022). The demographic and economic landscape presents both challenges and opportunities. With a rapidly expanding youth population over 60% of Nigerians are under 30 there is growing concern about youth unemployment and underemployment.

According to the National Bureau of Statistics, the youth unemployment rate (15–24 years) reached 8.4% in Q1 2024, while NEET (“Not in Education, Employment, or Training”) stood at 14.4% during the same period. As of December 2024, broader “youth unemployment” (15–34 years) was at 5.05 %, down from 9.05% in 2021 yet the actual picture is misleading due to high informality and working poverty. This employment crisis is exacerbated by systemic issues: often, only 12– 16% of jobs are in the formal sector, while over 90% is informal or self-employed, offering minimal social protection. Between 2020 and 2023, around 75–92% of employment was informal, with youth disproportionately affected. Regional disparities exist too for instance, South-East has 9% youth unemployment, while North-West registers about 3.9 %.

This alarming trend reflects not only economic instability but also a critical deficit in entrepreneurial engagement and readiness among young Nigerians. Despite the growing emphasis on entrepreneurship as a tool for job creation and economic development, actual participation in entrepreneurial activities remains low. Entrepreneurship is widely recognized for its role in promoting innovation, enhancing productivity, and reducing poverty. Scholars have highlighted that fostering an entrepreneurial mindset among youths is essential to addressing unemployment challenges in Nigeria (Ilevbare et al., 2022; Koen et al., 2018). However, the mere provision of entrepreneurship education has proven insufficient. Psychological and behavioural factors such as self-belief, social influence, and perceived ability play a significant role in determining whether individuals convert intention into action (Ajzen, 1991; Kautonen et al., 2013).

A recent study by Adeniyi et al. (2024) assessed the influence of individual entrepreneurial orientation (IEO) constructs risk-taking, innovation, and proactiveness on entrepreneurial readiness among students in technical and vocational education and training (TVET) institutions. While the study found that innovation and proactiveness had significant effects, it acknowledged critical limitations, notably the exclusion of psychological and social predictors such as self- efficacy, subjective norms, and perceived behavioural control. These three constructs are central to Ajzen’s (1991) Theory of Planned Behaviour (TPB), which explains how attitudes, social pressures, and perceived capabilities influence behavioural intentions. Self-efficacy, the belief in one’s capacity to execute specific tasks, has been shown to be a strong determinant of entrepreneurial intention (Eniola, 2020; Adeniyi, 2023). Subjective norms, or the perceived expectations of significant others, also influence entrepreneurial behaviour, especially in collectivist cultures like Nigeria (Wach & Wojciechowski, 2016). Perceived behavioural control reflects an individual’s confidence in overcoming potential obstacles, and it often predicts whether intentions will be translated into real entrepreneurial actions (Kautonen et al., 2013; Do Paço et al., 2015).

Despite the increasing acknowledgement of entrepreneurship as a strategic solution to youth unemployment and economic development in Nigeria, entrepreneurial engagement among young people remains relatively low. Though entrepreneurship education has been widely introduced in tertiary institutions and previous studies have examined entrepreneurial orientation and entrepreneurial intention, there is limited empirical

evidence on the psychological mechanisms that translate entrepreneurial intention into actual entrepreneurial engagement within the Nigerian context. In particular, the roles of self-efficacy, subjective norm, and perceived behavioural control, which are central constructs of the Theory of Planned Behaviour (TPB), remain underexplored, especially among Nigerian youths. This gap limits the development of evidence-based policies and interventions aimed at promoting entrepreneurial participation. Consequently, this study investigates how self-efficacy, subjective norm, and perceived behavioural control influence entrepreneurial engagement among Nigerian youths and examines the moderating role of entrepreneurial intention in these relationships.

Although, entrepreneurship education has been institutionalized in Nigerian tertiary institutions and TVET colleges, evidence suggests it is largely theoretical, with insufficient impact on students' entrepreneurial behaviour (Okolie et al., 2019; Ladipo et al., 2013). Prior studies have predominantly focused on individual entrepreneurial orientation (IEO) traits such as risk-taking, innovation, and proactiveness in predicting entrepreneurial readiness (Bolton & Lane, 2012; Adeniyi et al., 2024). However, these studies have often neglected core psychosocial constructs that more reliably explain actual entrepreneurial engagement, such as self-efficacy, subjective norms, and perceived behavioural control as outlined in Ajzen's (1991) Theory of Planned Behaviour (TPB).

Empirical evidence affirms that self-efficacy plays a central role in determining entrepreneurial intentions (Eniola, 2020; Adeniyi, 2023). Yet, most studies, such as that by Eniola (2020), stop at intention and do not examine actual entrepreneurial behaviour or engagement. Similarly, subjective norms, which are especially relevant in Nigeria's collectivist social structure, are often overlooked despite their influence on youth career choices (Wach & Wojciechowski, 2016). Furthermore, while perceived behavioural control is considered a strong predictor of action in TPB, its role in entrepreneurship studies in Nigeria is underexplored or measured in a limited capacity (Do Paço et al., 2015; Kautonen et al., 2013). In light of these gaps, this study seeks to investigate how self-efficacy, subjective norms, and perceived behavioural control influence the entrepreneurial engagement of Nigerian youths. By shifting the focus from intention to action and emphasizing psychosocial determinants, this research will provide practical insights for policy reforms, curriculum development, and youth empowerment initiatives.

Though, previous studies have recognized that self-efficacy, subjective norm, and perceived behavioural control influence entrepreneurial outcomes, results remain inconsistent regarding how these psychological factors translate into actual entrepreneurial engagement. While some individuals possessing these attributes actively engage in entrepreneurship, others do not, suggesting that additional mechanisms may explain this relationship. Entrepreneurial intention, as proposed by the Theory of Planned Behaviour (Ajzen, 1991), represents the immediate antecedent of behaviour and may strengthen or weaken the extent to which these psychosocial factors lead to entrepreneurial engagement. Despite its theoretical relevance, few studies in the Nigerian context have examined entrepreneurial intention as a moderating variable rather than merely a direct predictor. This study addresses this gap.

Based on this framework, the study formulates the following hypotheses:

H01: Self-efficacy do not have a significant influence on entrepreneurial engagement.

H02: Subjective norm do not have a significant influence on entrepreneurial engagement

- H03: Perceived behavioural control do not have a significant influence on entrepreneurial engagement
- H04: Entrepreneurial intention does not significantly moderate the relationship between self-efficacy and entrepreneurial engagement.
- H05: Entrepreneurial intention does not significantly moderate the relationship between subjective norm and entrepreneurial engagement
- H06: Entrepreneurial intention does not significantly moderate the relationship between perceived behavioural control and entrepreneurial engagement

Conceptual Review

Entrepreneurial engagement refers to the extent to which individuals actively participate in entrepreneurial activities such as opportunity identification, business start-up, and venture management. Unlike entrepreneurial intention, which reflects willingness, entrepreneurial engagement captures actual behavioural involvement in entrepreneurship. Scholars argue that engagement is a more realistic indicator of entrepreneurial outcomes because it reflects action rather than mere intention (Kautonen et al., 2015).

Self-efficacy is defined as an individual's belief in their capability to perform specific tasks successfully (Bandura, 1997). In the entrepreneurial context, self-efficacy influences how individuals approach challenges, persist in the face of obstacles, and ultimately engage in entrepreneurial activities. High entrepreneurial self-efficacy has been linked to greater initiative and resilience (Eniola, 2020).

Subjective norm refers to perceived social pressure from significant others such as family, friends, and mentors regarding whether an individual should engage in a behaviour (Ajzen, 1991). In collectivist societies like Nigeria, social expectations play a crucial role in shaping career decisions, including entrepreneurship (Wach & Wojciechowski, 2016).

Perceived behavioural control (PBC) represents an individual's perception of their ability to perform a given behaviour, considering available resources and constraints (Ajzen, 1991). It reflects both internal control (skills, knowledge) and external control (opportunities, support systems). Studies suggest that individuals with higher PBC are more likely to translate entrepreneurial intentions into actual engagement (Do Paço et al., 2015).

Entrepreneurial intention is the conscious state of mind that directs attention and action toward starting a business (Krueger et al., 2000). It serves as a bridge between psychological readiness and actual entrepreneurial behaviour.

Theoretical Review

This study is anchored on the **Theory of Planned Behaviour (TPB)** developed by Ajzen (1991). TPB posits that human behaviour is determined by behavioural intention, which is influenced by three key factors: attitude toward the behaviour, subjective norm, and perceived behavioural control. The theory further suggests that perceived behavioural control can directly influence behaviour, particularly when individuals have actual control over the situation. In the context of entrepreneurship, TPB explains how psychological and social factors shape an individual's decision to engage in entrepreneurial activities.

The relevance of TPB to this study lies in its ability to explain both **intention and action**, making it suitable for examining entrepreneurial engagement. While many studies focus only on intention, TPB provides a framework for understanding how intention is converted into actual behaviour, especially when moderated by factors such as self-efficacy and perceived control (Kautonen et al., 2013).

Empirical Review

Empirical studies on entrepreneurship have extensively examined the role of psychological factors in shaping entrepreneurial outcomes. However, findings remain mixed, particularly in developing economies like Nigeria. Several studies confirm that self-efficacy is a strong predictor of entrepreneurial intention. For instance, Eniola (2020) found that entrepreneurial self-efficacy significantly influences students' intention to start a business in Nigeria. Similarly, Adeniyi (2023) reported that individuals with higher confidence in their abilities are more likely to develop entrepreneurial aspirations. However, these studies largely focus on intention rather than actual engagement, leaving a gap in understanding behavioural outcomes.

Subjective norm has also been examined in entrepreneurship literature, though with inconsistent findings. Wach and Wojciechowski (2016) found that social support positively influences entrepreneurial intention, particularly in collectivist cultures. Conversely, some studies suggest that subjective norm has a weaker effect compared to personal attitudes and perceived control (Do Paço et al., 2015). This inconsistency indicates the need for further investigation, especially in the Nigerian context where family and societal expectations strongly shape career choices.

Perceived behavioural control has been widely recognized as both a predictor of intention and actual behaviour. Kautonen et al. (2013) found that PBC significantly predicts entrepreneurial action, suggesting that individuals who perceive fewer barriers are more likely to start businesses. Similarly, Do Paço et al. (2015) established that PBC enhances the likelihood of translating intention into action. Despite this, limited studies in Nigeria have examined its direct effect on entrepreneurial engagement. Recent studies have attempted to integrate multiple dimensions of entrepreneurial orientation. For example, Adeniyi et al. (2024) examined risk-taking, innovativeness, and proactiveness among TVET students and found that these factors influence entrepreneurial readiness. However, the study did not incorporate psychosocial variables such as self-efficacy and subjective norms, limiting its explanatory power.

Furthermore, most existing studies adopt a **unidimensional approach** and fail to examine interaction effects. The moderating role of entrepreneurial intention in the relationship between psychological factors and entrepreneurial engagement remains underexplored. This creates a significant research gap, particularly in emerging economies where contextual factors may influence entrepreneurial behaviour differently.

Gaps in Literature

Although entrepreneurship has received considerable scholarly attention, several important gaps remain in the literature. First, many studies have focused on entrepreneurial intention as the primary outcome variable rather than actual entrepreneurial engagement. For instance, Eniola (2020), Adeniyi (2023), and Okolie et al., (2019) primarily examined the determinants of entrepreneurial intention, providing limited evidence on whether these intentions translate

into entrepreneurial action. Thus, there is insufficient understanding of the factors that drive actual entrepreneurial engagement.

Also, previous studies in Nigerian have predominantly emphasized entrepreneurial orientation constructs such as innovativeness, proactiveness, and risk-taking (Adeniyi et al., 2024), while giving relatively little attention to key psychosocial variables, particularly subjective norm and perceived behavioural control. This has limited the explanatory power of existing entrepreneurship models within the Nigerian context. In addition, although the Theory of Planned Behaviour identifies entrepreneurial intention as a central determinant of behaviour, empirical studies have largely examined its direct or mediating role, with limited attention to its potential moderating influence on the relationships between self-efficacy, subjective norm, perceived behavioural control, and entrepreneurial engagement. This leaves an important theoretical gap regarding the conditions under which these psychosocial factors translate into entrepreneurial behaviour. Lastly, there is a contextual gap. Most existing studies have been conducted in different countries or among broader student populations, with relatively few focusing specifically on Kaduna State. Given the unique socio-economic and institutional characteristics of the state, findings from other contexts may not be directly applicable. This study addresses these theoretical, empirical, and contextual gaps.

Conceptual Framework

The conceptual framework depicts graphically, the relationship between the independent (i.e., Self-efficacy, Subjective Norm, Perceived Behavioural Control) and dependent variables (i.e., Entrepreneurial Engagement) as accentuated by the moderating variable (i.e., Entrepreneurial Intention). (See: Figure 1 below)

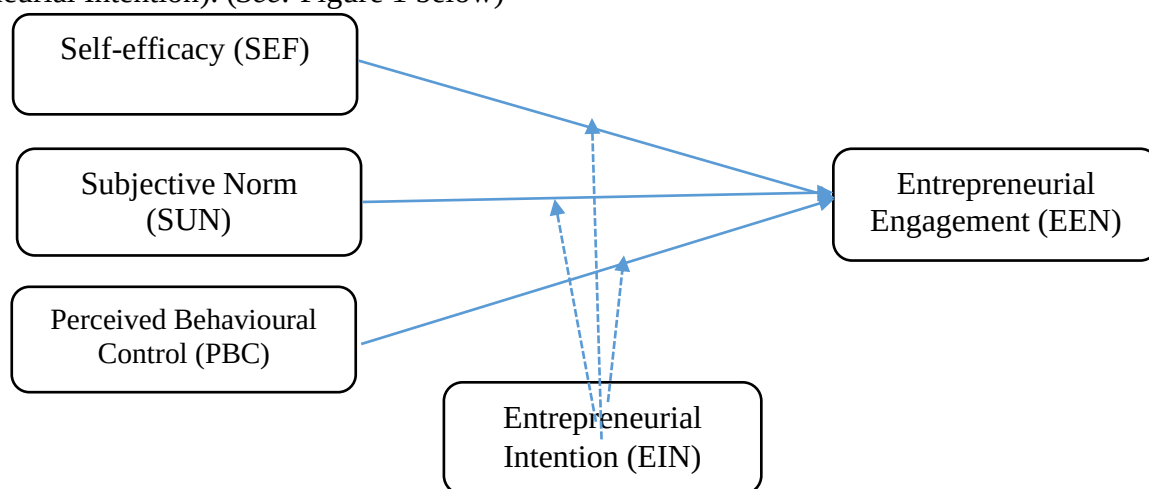


Figure 1: Conceptual Framework

Materials and Method

This study adopted a positivist philosophy and quantitative research design to examine how self-efficacy, subjective norm, and perceived behavioural control influence entrepreneurial engagement among final-year students of the College of Business and Management Studies, Kaduna Polytechnic. The college was selected because it offers entrepreneurship-related programmes and comprises final-year students who have completed the compulsory entrepreneurship education curriculum prescribed for tertiary institutions in Nigeria. These students are considered appropriate for the study because they are at the transition stage

between education and the labour market, where decisions regarding self-employment and venture creation become more relevant. Furthermore, they possess adequate exposure to entrepreneurial knowledge and are therefore well positioned to provide informed responses on self-efficacy, subjective norm, perceived behavioural control, entrepreneurial intention, and entrepreneurial engagement. A structured questionnaire, adapted from validated instruments grounded in the Theory of Planned Behaviour, was used to collect data. The population consisted of 1,102 final-year students in the College of Business and Management Studies, Kaduna Polytechnic, during the 2024/2025 academic session. The population figure was obtained from the Students' Affairs Division/Academic Office of Kaduna Polytechnic, from which a sample of 293 was drawn using Taro Yamane's formula. Simple random sampling was employed to ensure representativeness. Data collection was conducted over a six-week period using a structured questionnaire designed on a five-point Likert scale ranging from 1 (Strongly Disagree) to 5 (Strongly Agree).

Data were collected using a structured five-point Likert scale questionnaire, yielding 273 valid responses. Entrepreneurial performance was measured with an eight-item scale adapted from Spillan and Parnell (2006), strategic competency with eight items from Hay and McBer (1996), conceptual competency with ten items from Boyatzis and Kolb (1995), and government support with eight items from Ahmad and Xavier (2012). All measures were validated for reliability and convergent and discriminant validity using Cronbach's alpha, composite reliability, AVE, and HTMT. Data analysis was conducted using Partial Least Squares Structural Equation Modelling (PLS-SEM) via SmartPLS 4, providing robust assessment of the relationships among competencies, government support, and SME performance.

Results and Discussion

Data were analyzed using the Structural Equation Modeling (SEM) technique through SmartPLS version 4 to evaluate both the measurement and structural models. The measurement model was employed to assess the reliability, validity, and outer loadings of the constructs, as well as the coefficient of determination (R^2). Also, the effect size (f^2) and predictive relevance (Q^2) were computed to determine the magnitude and predictive strength of the relationships among the study variables.

Measurement Model

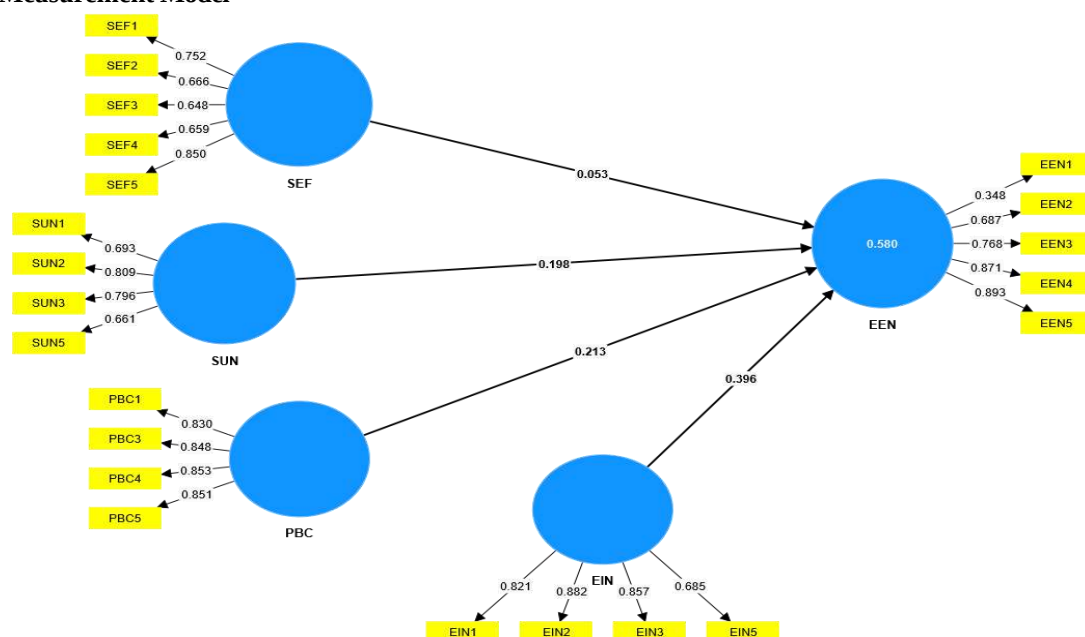


Figure 1: Measurement Model

Table 1: Item Loadings

Construct	Items	Loadings	CA	CR	AVE
Entrepreneurial Engagement	EEN1	0.348	0.769	0.846	0.548
	EEN2	0.687			
	EEN3	0.768			
	EEN4	0.871			
	EEN5	0.893			
Entrepreneurial Intention	EIN1	0.712	0.828	0.826	0.664
	EIN2	0.698			
	EIN3	0.686			
	EIN5	0.678			
Perceived Planned Behaviour	PBC1	0.830	0.867	0.870	0.715
	PBC3	0.848			
	PBC4	0.853			
	PBC5	0.851			
Self-efficacy	SEF1	0.752	0.764	0.793	0.517
	SEF2	0.666			
	SEF3	0.648			
	SEF4	0.659			
	SEF5	0.850			
Subjective Norm	SUN1	0.693	0.727	0.733	0.551
	SUN2	0.809			
	SUN3	0.796			
	SUN5	0.661			

Source: The Researcher, 2025

The outer loadings of the retained items range from 0.348 to 0.893. Except for EEN1 (0.348), most item loadings meet or exceed the acceptable threshold of 0.50, as recommended by Hulland (1999) and Hair et al. (2021). Items with low loadings were removed during the purification process to strengthen the reliability and validity of the constructs. The high loadings indicate that the observed variables adequately represent their respective latent constructs. Convergent validity was also assessed using the Average Variance Extracted (AVE). All constructs reported AVE values above the recommended threshold of 0.50, with Entrepreneurial Engagement (0.548), Entrepreneurial Intention (0.664), Perceived Planned Behaviour (0.715), Self-efficacy (0.517), and Subjective Norm (0.551). This demonstrates that the constructs explain more than 50% of the variance in their indicators, confirming adequate convergent validity. The Composite Reliability (CR) values for all constructs exceed the acceptable benchmark of 0.70, as suggested by Hair, Page, and Brunsveld (2020). Specifically, CR for Entrepreneurial Engagement (0.846), Entrepreneurial Intention (0.826), Perceived Planned Behaviour (0.870), Self-efficacy (0.793), and Subjective Norm (0.733) indicate good internal consistency across the measurement items. Also, Cronbach's Alpha (CA) values for all constructs Entrepreneurial Engagement (0.769), Entrepreneurial Intention (0.828), Perceived Planned Behaviour (0.867), Self-efficacy (0.764), and Subjective Norm (0.727) all exceed the minimum acceptable value of 0.70, demonstrating adequate internal reliability.

Table 2: Heterotrait-Monotrait (HTMT)

Construct	EEN	EIN	PBC	SEF
Entrepreneurial Engagement				
Entrepreneurial Intention	0.861			
Perceived Behavioural Control	0.785	0.869		
Self-efficacy	0.649	0.724	0.698	
Subjective Norm	0.829	0.858	0.839	0.882

Source: SmartPLS Version 4

As presented in Table 2, the HTMT values range from 0.649 to 0.882. Several values (e.g., EIN–PBC = 0.869; SUN–SEF = 0.882) slightly exceed the strict 0.85 threshold. However, these values remain below the more lenient upper boundary of 0.90, suggested by Gold, Malhotra, and Segars (2001), which is acceptable when constructs are theoretically related and supported by strong reliability and convergent validity.

Structural Model

This section examines how institutional support affects the exogenous and endogenous factors, both directly and indirectly. Coefficient of determination (R^2), predictive relevance (Q^2), and effect size (f^2) were also examined.

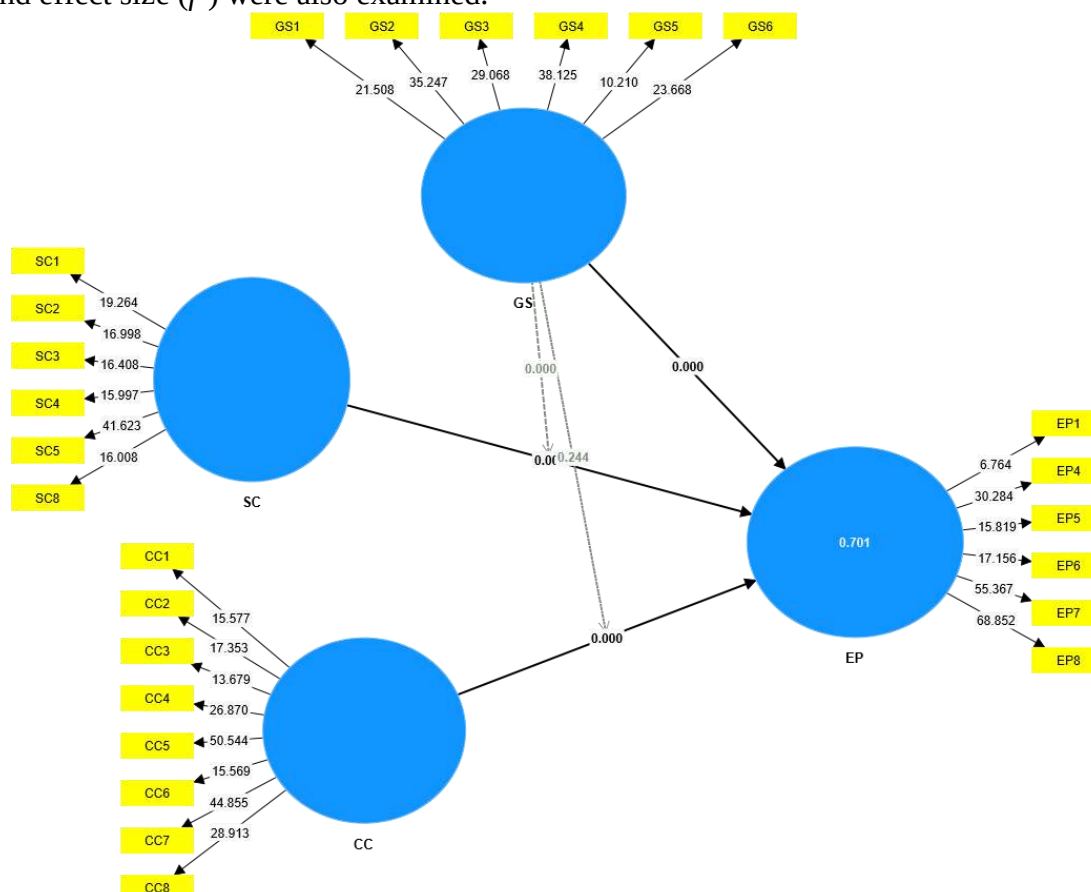


Figure 2: Structural Model

Table 3: Test of Direct and Moderating Hypothesis

Relationship	Beta	Standard dev	T statistics	P Values	Decision
EIN -> EEN	0.333	0.050	6.624	0.000	Supported
PBC -> EEN	0.249	0.054	4.631	0.000	Supported
SEF -> EEN	0.136	0.051	2.673	0.008	Supported
SUN -> EEN	0.224	0.052	4.304	0.000	Supported
EIN x PBC -> EEN	0.143	0.048	2.964	0.003	Supported
EIN x SUN -> EEN	-0.027	0.055	0.498	0.619	Not Supported
EIN x SEF -> EEN	-0.220	0.043	5.169	0.000	Supported
R² = 0.612		Q² = 0.601			

Source: SmartPLS Output (2025)

The structural model results presented in Table 3 reveal both the direct and moderating effects of the independent variables on entrepreneurial engagement (EEN). The findings show that entrepreneurial intention (EIN) has a strong and significant positive effect on entrepreneurial engagement ($\beta = 0.333$, $t = 6.624$, $p = 0.000$), indicating that individuals with higher levels of intention are more likely to participate actively in entrepreneurial activities. Perceived behavioural control (PBC) also demonstrates a significant positive influence on entrepreneurial engagement ($\beta = 0.249$, $t = 4.631$, $p = 0.000$), suggesting that when individuals have a stronger sense of capability and control over entrepreneurial tasks, they are more inclined to engage in entrepreneurship. Similarly, self-efficacy (SEF) exerts a significant positive impact on entrepreneurial engagement ($\beta = 0.136$, $t = 2.673$, $p = 0.008$), confirming that individuals who believe in their entrepreneurial competence tend to translate such confidence into increased engagement. Subjective norm (SUN) is also found to significantly predict entrepreneurial engagement ($\beta = 0.224$, $t = 4.304$, $p = 0.000$), implying that social approval, encouragement, and support from family, friends, and peers can enhance individuals' likelihood of taking part in entrepreneurial activities.

With respect to the moderating effects, the results indicate that perceived behavioural control significantly strengthens the relationship between entrepreneurial intention and entrepreneurial engagement ($\beta = 0.143$, $t = 2.964$, $p = 0.003$). This means that when individuals feel capable and confident in handling entrepreneurial tasks, their intentions more effectively translate into actual engagement. However, subjective norm does not significantly moderate the relationship between entrepreneurial intention and entrepreneurial engagement ($\beta = -0.027$, $t = 0.498$, $p = 0.619$), suggesting that social pressure or approval does not alter how intention influences entrepreneurial engagement. Interestingly, the interaction between entrepreneurial intention and self-efficacy is significant but negative ($\beta = -0.220$, $t = 5.169$, $p = 0.000$), indicating that higher self-efficacy weakens the positive effect of intention on entrepreneurial engagement. A plausible explanation is that individuals with very high self-confidence may rely more on their internal belief in their capabilities than on their stated intention when deciding whether to engage in entrepreneurship.

The model demonstrates strong explanatory and predictive power, with an R^2 value of 0.612 showing that 61.2% of the variance in entrepreneurial engagement is accounted for by the predictor variables and moderating effects. The predictive relevance of the model is further confirmed by a Q^2 value of 0.601, indicating substantial capacity for accurate prediction. These findings collectively highlight the central roles of intention, perceived capability, social influences, and personal self-belief in determining entrepreneurial engagement and provide meaningful insights into the psychological mechanisms that drive entrepreneurial action.

Effect Size

The effect size (f^2) was examined to determine the relative contribution of each exogenous construct to the endogenous variable entrepreneurial engagement. According to Cohen (1988), f^2 values of 0.02, 0.15, and 0.35 represent small, medium, and large effects respectively.

Table 4: *Effect Size (f^2)*

Constructs	PER(f^2)	Effect Size
EIN → EEN	0.106	Small
PBC → EEN	0.063	Small
SEF → EEN	0.020	Small
SUN → EEN	0.048	Small
EIN x PBC → EEN	0.024	Small
EIN x SUN → EEN	0.001	No effect
EIN x SEF → EEN	0.079	Small

Source: SmartPLS Output (2025)

The effect size (f^2) results presented in Table 4 assess the relative contribution of each exogenous construct to entrepreneurial engagement (EEN). Following Cohen's (1988) guidelines, f^2 values of 0.02, 0.15, and 0.35 represent small, medium, and large effects, respectively. The findings show that all the direct predictors Entrepreneurial Intention (EIN), Perceived Behavioural Control (PBC), Self-efficacy (SEF), and Subjective Norm (SUN) exhibit small effect sizes, with f^2 values of 0.106, 0.063, 0.020, and 0.048 respectively. This indicates that while each construct contributes meaningfully to entrepreneurial engagement, their individual impacts are modest. Among the direct effects, entrepreneurial intention demonstrates the largest contribution, confirming its central role in predicting entrepreneurial engagement.

Regarding the interaction terms, the results also show small effect sizes for the moderating effects of PBC ($f^2 = 0.024$) and SEF ($f^2 = 0.079$) on the relationship between entrepreneurial intention and entrepreneurial engagement. This suggests that although the moderations are statistically significant, their practical influence remains limited. The interaction between entrepreneurial intention and subjective norm demonstrates an almost negligible effect ($f^2 = 0.001$), indicating that subjective norm does not meaningfully moderate the intention–engagement relationship.

Discussion

The results of this study demonstrate that entrepreneurial intention (EIN), perceived behavioural control (PBC), self-efficacy (SEF), and subjective norm (SUN) significantly influence entrepreneurial engagement (EEN) among SMEs in Kaduna State. These findings align with recent empirical research in the field of entrepreneurship. For instance, Nasri and Morched (2023) found that entrepreneurial self-efficacy significantly predicts entrepreneurial intention when integrated within the Theory of Planned Behaviour framework. Similarly, Romero-Galisteo et al. (2022) reported that perceived feasibility and self-efficacy are critical in shaping students' entrepreneurial intentions, emphasizing the role of confidence in ability for motivating entrepreneurial action. Consistent with these findings, a 2024 study on the transition

from entrepreneurial intention to actual behaviour highlighted that entrepreneurial intention significantly predicts actual engagement, and that internal factors such as locus of control strengthen this relationship.

Perceived behavioural control was also found to be a significant predictor of engagement, reflecting the importance of perceived capability in converting intentions into action. This is corroborated by Makai and Dóry (2023), who demonstrated that perceived university support positively influences perceived behavioural control, thereby enhancing entrepreneurial intentions among students. Similarly, Nwibe and Ogbuanya (2024) found that self-efficacy mediates the relationship between emotional intelligence and entrepreneurial intention, underscoring the relevance of psychological factors in entrepreneurial behaviour in the Nigerian context. These studies collectively suggest that both internal beliefs (self-efficacy, perceived control) and external supports (institutional or social) are critical for translating entrepreneurial intentions into actual engagement.

The moderating effects observed in this study, particularly the positive moderation of PBC and the negative moderation of self-efficacy, offer additional nuance to existing literature. While prior studies have mainly focused on direct effects of self-efficacy and PBC on intention and behaviour (Amofah, 2022; Malaysian study, 2024), the current findings highlight the conditional influence of these variables. Specifically, perceived control strengthens the link between intention and engagement, whereas excessively high self-efficacy may reduce the reliance on intention as a motivating factor, reflecting a possible overconfidence or saturation effect. Finally, the role of subjective norm, although significant, was weaker in moderating intention-engagement relationships, consistent with recent cross-cultural evidence that social norms influence entrepreneurial intention but their relative strength varies across contexts (Al Saiqal et al., 2024).

These findings confirm that entrepreneurial engagement is a multi-faceted phenomenon, influenced by the interplay of cognitive beliefs, personal capability perceptions, social pressures, and contextual support. They underscore the need for entrepreneurship programs and policies in Kaduna State to simultaneously foster intentions, enhance perceived control, strengthen self-efficacy, and provide enabling institutional support to maximize actual engagement among entrepreneurs.

Implication

The findings of this study have significant theoretical, practical, and policy implications for entrepreneurship research and practice, particularly in the context of SMEs in Kaduna State. Theoretically, the results reinforce the predictive power of the Theory of Planned Behaviour (TPB) in explaining entrepreneurial engagement, confirming that intention, perceived behavioural control, self-efficacy, and subjective norms are key determinants of entrepreneurial action. This supports recent empirical studies (Nasri & Morched, 2023; Romero-Galisteo et al., 2022) and highlights the importance of integrating psychological and social variables when examining entrepreneurship in emerging economies. The observed moderating effects further suggest that researchers should consider conditional relationships and interactions among cognitive, motivational, and contextual factors, rather than relying solely on direct predictors of entrepreneurial behaviour.

Practically, the study underscores the importance of capacity-building initiatives aimed at strengthening entrepreneurial intentions and perceptions of control among SME owners.

Training programs, mentorship, and skill-development workshops that enhance self-efficacy and perceived behavioural control can help entrepreneurs translate intention into tangible engagement, increasing the likelihood of venture success. Additionally, the findings on subjective norms indicate that fostering supportive social environments including peer networks, family encouragement, and institutional recognition can further motivate entrepreneurial action.

From a policy perspective, the study highlights the critical role of external support mechanisms in facilitating entrepreneurial engagement. Government agencies, financial institutions, and development organizations should design interventions that not only provide financial and infrastructural support but also create enabling environments that enhance entrepreneurs' perceived control and confidence. This is particularly relevant in contexts like Kaduna State, where structural and institutional constraints may limit entrepreneurial opportunities. By focusing on both internal psychological factors and external support structures, policymakers can more effectively stimulate SME growth, innovation, and sustainability.

Conclusion and Recommendations

The study concludes that entrepreneurial intention is a critical driver of entrepreneurial engagement, confirming that individuals with higher commitment and readiness to act are more likely to participate actively in entrepreneurial activities. Perceived behavioural control positively influences engagement, suggesting that a stronger sense of capability and control enables individuals to act on their intentions. Self-efficacy has a direct positive effect on engagement but negatively moderates the intention–engagement relationship, indicating that very high confidence may reduce reliance on intention when deciding to engage in entrepreneurship. Subjective norm positively affects engagement, demonstrating the role of social support in motivating entrepreneurial action, though it does not significantly alter the effect of intention on engagement.

Based on the findings of the research, the following recommendations were made:

1. Entrepreneurship training, goal-setting workshops, and exposure to success stories can help strengthen individuals' intentions to engage in entrepreneurial activities.
2. Policymakers and support institutions should provide practical training, resource access, and mentorship that empower entrepreneurs to manage challenges and execute their business plans effectively.
3. Training programs should aim to build confidence while also emphasizing structured planning and action, ensuring self-efficacy complements rather than replaces intention.
4. Family, peer networks, and professional associations should be encouraged to provide motivation, mentorship, and recognition, creating an enabling social environment for entrepreneurial participation.
5. Support programs should adopt a holistic approach that simultaneously enhances intention, perceived capability, self-efficacy, and social support. Blended interventions combining skills training, mentorship, networking opportunities, and motivational initiatives will maximize entrepreneurial engagement and business performance.

Limitations and Suggestions for Further Studies

Despite providing valuable insights, this study has several limitations. First, the use of a cross-sectional research design limits the ability to establish causal relationships over time, making it difficult to determine how self-efficacy, subjective norm, perceived behavioural control, and entrepreneurial intention influence engagement in the long term. Second, data

were collected through self-reported questionnaires, which may be susceptible to social desirability bias or inaccurate recall. Third, the study focused exclusively on SMEs in Kaduna State, which may limit the generalizability of the findings to other regions or national contexts. Finally, only entrepreneurial intention was examined as a moderating variable, while other potential moderators such as access to finance, innovation capability, digital adoption, or market turbulence were not considered, possibly leaving out important contextual influences.

Future research should consider adopting longitudinal designs to capture changes in entrepreneurial engagement, competencies, and intention over time. Expanding the study to include multiple states or regions would enhance the external validity and generalizability of findings. Additionally, subsequent studies could explore other moderating or mediating factors, such as entrepreneurial networks, access to finance, innovation capability, or digital adoption, to provide a more comprehensive understanding of factors influencing engagement. Employing mixed-methods or qualitative approaches may also yield richer insights into the complex interplay between individual, social, and contextual factors that drive entrepreneurial engagement in SMEs.

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EFFECTS OF CREDIT DEFAULT ON FINANCIAL INCLUSION AND PERFORMANCE OF COOPERATIVE THRIFT AND CREDIT SOCIETIES (CTCSs) IN YARA-IJUMU, OF KOGI STATE

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Abstract

This study evaluated the effects of credit default on financial inclusion and performance of cooperative thrift and credit societies (CTCSs) in Ijumu, Kogi state, Nigeria. Specifically, it examined how high credit utilization, debt-to-income ratio, and loan covenant validation contributed to credit default and affects the financial performance of CTCSs in Yara- Ijumu. Primary data was obtained through a well-structured questionnaire and one hundred and seventeen (117) respondents were interviewed including CTCS management committee, loan committees, trustees, and supervisory committees. Linear regression was used to analyzed the data. The findings showed that high credit utilization, measured by multiple loan applications relative to income, also weakened financial performance (coefficient = -.601, $p = 0.000$). Similarly, a high debt-to-income ratio was linked to diminished dividends (coefficient = -.541, $p = 0.026$). Conclusively, the findings demonstrated that late credit repayment behaviour threatens the financial standard of CTCSs. The study therefore, recommended that cooperative Credit and thrift cooperative societies should enforce strict credit eligibility criteria and implement structured debt repayment plans. Cooperative Thrift and Credit Societies should establish their members with self-home make products and members' education should be taken seriously, so as to teach members on how to utilize credit, generate revenue and manage debt. Finally, members should try to repay their credit promptly to their cooperative thrift and credit societies.

Keywords: Cooperatives, Credit, Default, Financial inclusion, Financial Performance,

Introduction

Credit default refers to the failure of a borrower to meet the legal obligations or conditions of loan agreement, particularly the non-payment of principal or interest as agreed. It represents a critical issue in financial systems because it drastically affects the stability, profitability, and sustainability of lending institutions, and cooperative societies. In modern financial system, credit plays a vital role in stimulating economic growth by enabling individuals and

businesses to access funds for consumption and investment. Also it refers to as the failure of a borrower to meet loan repayment obligations as agreed in a credit contract. It is commonly proxy in empirical studies by non-performing loans (NPLs), loan delinquency rates, and loan loss provisions (Ozilli, 2019).

Credit default is a major component of credit risk, which reflects the likelihood of loss due to borrower non-payment (Bassis, 2015). In financial institutions, particularly Cooperative Thrift and Credit Societies (CTCS), credit default undermines financial stability and reduces the availability of loanable funds (Adusei, 2021). However, when borrowers fail to repay loans as scheduled, it leads to credit default, which increases non-performing loan and reduces the liquidity and lending capacity of financial institutions. According to recent research, rising credit default rates have been a major concern, especially in developing economies where credit risk management frameworks are often weak (Adebayo and Olowu, 2023).

Therefore, credit default can occur due to several factors, including poor credit appraisal, economic downturns, borrower over-indebtedness, unemployment, and inadequate monitoring of loan utilization. In Nigeria and other emerging economies, institutional weaknesses, lack of collateral enforcement, and information asymmetry further increased default rate (Okafor, 2023). The concept of credit risk is the probability that a borrower will default has become central to financial management and policy formulation.

Furthermore, the consequences of credit default extends beyond individual institutions. High default rates can destabilize the entire cooperative Thrift and credit societies, reduce member's confidence, and slow down economic development. Of the financial position of Cooperative societies often respond by tightening lending conditions, increasing interest rate, or requiring stricter collateral, which may limit access to credit for productive sector of the economy. High credit utilization indicates that a borrower is heavily reliant on borrowed funds and may be experiencing financial strain. When individuals or cooperative members consistently use a large percentage (e.g., above 70-80%) of their available credit, it suggests limited financial flexibility and a higher likelihood of repayment difficulty. Debt to Income (DTI) ratio is a critical indicator of repayment capacity. A higher DTI ratio means that a large portion of income is already committed to debt servicing leaving little room for additional financial responsibilities. One of the on-going issues that have a big influence on CTCS's financial performance is credit default as a result of high levels of non-performing loans, these societies struggle to preserve liquidity and operational stability, although playing a crucial role in providing members with cheap financial services. Inadequate borrower monitoring systems, poor credit appraisal procedures, and a lack of enforcement tools for loan recovery all contribute to the problem of credit defaults that have far-reaching effects since they make it more difficult for CTCS to meet member withdrawal requests, make fresh loan disbursements, and maintain long-term viability. This jeopardizes their primary goal of encouraging financial inclusion and giving members economic power to establish self-businesses and engage most in entrepreneurship orientation.

Richard *et al.*, (2022) investigates that weak loan monitoring increases default rates in cooperative societies. Richard *et al.*, (2022) observes that macroeconomic instability, such as inflation and unemployment, increases credit risk. Kargi (2011) reports that poor credit risk management is a major cause of bank distress in Nigeria. Financial inclusion is the availability and equality of opportunities to access financial services (Nanda & Mandeep, 2010). It refers to processes by which individuals and businesses can access appropriate,

affordable, and timely financial products and services—which include banking, loan, equity, and insurance products. World Bank, 2013; Shankar and Sarita, 2013). It provides paths to enhance inclusiveness in economic growth by enabling the un-banked population to access the means for savings, investment, and insurance (Morgan, 2020), towards improving household income and reducing income inequality (Ibrahim, 2020).

Financial-inclusion efforts typically target those who are un-banked or under banked, and then direct sustainable financial services to them. World Bank (2013) financial inclusion entails going beyond merely opening a bank account. Banked individuals can be excluded from other financial services. Ranjani & Bapat (2015) Having more-inclusive financial systems has been linked to stronger and more sustainable economic growth and development, thus achieving financial inclusion has become a priority for many countries across the globe. In 2021, about 1.4 billion adults lacked a bank account, declining further to 1.3 billion by 2024. WB (2020); TGFD (2025). Among the un-banked, a significant number are women and poor people in rural areas. Often, those excluded from financial institutions face discrimination or belong to vulnerable or marginalized populations.

Statement of Problem

Credit default has become a persistent challenge affecting the financial stability and sustainability of lending institutions, particularly Cooperative Thrift and Credit Societies. Despite efforts to provide accessible loan to members, many cooperative societies continue to experience increasing level of loan default, which reduces liquidity, weaken profitability, and limits their capacity to extend credit to other members. It is commonly proxied in empirical studies by non-performing loan (NPLs), Loan delinquency rates, and loan loss provisions (Ozili, 2019). Credit risk reflects the likelihood of loss due to borrower non-payment, (Bessis, 2015).

In financial institutions, particularly Cooperative Thrift and Credit Societies (CTCS), credit default undermines financial stability and reduces the availability of loanable funds (Adusei, 2021). Major concerns are the rising level of high credit utilization among borrower, many members tend to exhaust their available credit limits, reflecting over-dependence on borrowed fund and poor financial management. Credit default in the cooperative societies refers to the failure of members of cooperative society, especially CTCS to repay loan in accordance with agreed terms. Also, focus on major dimension of credit risk, which directly affects the sustainability and financial performance of cooperative institutions (Bessis, 2015). This behaviour often results in financial strain, making it difficult for such borrowers to meet repayment obligations as at when due. Empirical studies show that borrowers with high credit utilization ratios are likely to default due to over-leverage and reduced financial flexibility (Ajakaiye & Olowoorekere 2021).

Besides, a high DTI ratio has been identified as a significant determinant of credit default. The DTI ratio measure the proportion of a borrower's income used to service debt obligations. A higher ratio implies limited disposable income and reduced repayment capacity, thereby increasing the probability of loan default (Abdelaziz *et al.*, 2021) Borrowers with elevated DTI levels are more vulnerable to income shocks and financial instability, which further exacerbates default risk. Therefore, the problem of this study is to investigate the extent to which high credit utilization and DTI ratio influence credit default, particularly within CTCS. Therefore, addressing this problem is essential for improving credit risk

management practices and ensuring the long-term financial sustainability of cooperative institutions.

Due to the lack of financial infrastructure and financial services, many underserved and low-income communities suffer. Specifically, the lack of proper information can harm low-income communities and expose them to financial risks. For instance, payday loans target low-income persons who are not adequately informed about interest rates or compound interest. Such people may become trapped and indebted to predatory institutions. The public sector spearheads outreach and education for adults to receive free financial services such as education, tax preparation, and welfare assistance.

Non-profit organizations dedicate themselves to serving underprivileged communities through private resources and state funding. Within California, state legislation allows for grants to be disbursed during the fiscal year and nonprofits can apply for additional funding. Bill AB-423 is an example of the state recognizing the lack of financial inclusion of young adults; the bill encourages pupil instruction and financial literacy lessons to begin as early as grade 9. While not all individuals need or want financial services, financial inclusion aims to remove all barriers, both supply-side and demand-side. Supply-side barriers stem from financial institutions themselves. They often indicate poor financial infrastructure and include a lack of nearby financial institutions, high costs to open accounts, or documentation requirements. Demand-side barriers refer to aspects of the individual seeking financial services and include poor financial literacy, lack of financial capability, or cultural or religious beliefs (such as suspicion of loan sharks or rejection of usury) that impact financial decisions. TGF (2025) Some experts express skepticism about the effectiveness of financial-inclusion initiatives. WBF (2018) Research on microfinance initiatives indicates that wide availability of credit for micro-entrepreneurs can produce informal inter-mediation, an unintended form of entrepreneurship.

Research Objective

1. To describe socio-economic characteristics of the respondents in the study areas
2. To investigate the effect of High credit Utilization on yearly income in CTCS
3. To analyze the effect of debt to income on dividend in CTCS.

Literature Review

Credit default in Cooperative Thrift and Credit Societies refers to the failure of members to repay loans obtained from cooperative financial institution according to agreed terms. It is a cogent indicators of Credit Risk, which stipulates the likelihood of financial loss arising from borrower non-payment (Bessis, 20215). In Cooperative Thrift Credit Societies (CTCS), credit default is particularly significant because loans are financed through members' pooled savings. Also, credit default does not only affect the institution but also, under-limit the financial welfare of all members (Adusei, 2021). High default rates reduce liquidity, profitability, and the capacity of cooperative to extend further credit (Ozilli, 2019).

Therefore, Credit default has been widely discussed in financial and economic literature as a major indicator of credit risk and financial instability. It also, refers to failure of a borrower to meet agreed of loan repayment obligations, either in part or install-mental, within the stipulated period. It is a key concern for financial institutions because it directly affects profitability, liquidity, and overall financial performance of CTCS. Credit default is a multi-

dimensional phenomenon influenced by a combination of economic, behavioral, and institutional factors. A systematic review by Alma and Coskun (2021) revealed that credit default is closely associated with borrower inability to fulfill financial obligations, and accurate prediction of default probability is essential for effective credit risk management.

Theoretical Review

Information Asymmetry Theory

Pioneered by the works of Stiglitz and Weiss (1981), Information Asymmetry Theory addresses transactions where one party possesses more or better information than the other. In financial markets, this imbalance is particularly pronounced, as borrowers inherently know more about their own creditworthiness, financial situation, and repayment intentions than lenders do. This information gap creates two significant market failures: adverse selection and moral hazard. Adverse selection occurs before the loan is granted, as the lender cannot easily distinguish between high-risk and low-risk borrowers, leading them to unintentionally finance riskier individuals. Moral hazard occurs after the loan is disbursed, as the borrower may engage in riskier behavior than they otherwise would, knowing the lender will bear a significant portion of the loss. This theory holistically connects the variables' study to the problem of loan default. For instance, a borrower's true level of high credit utilization or their actual debt-to-income ratio might be concealed or understated during the loan application process. This asymmetry leads to an uninformed lending decision that does not accurately reflect the true risk involved. Similarly, a lack of complete information makes it difficult for the cooperative to properly assess the severity of a member's financial distress or the tangible risk posed by their employment instability, which can distort the perceived health of the loan portfolio and impact the loan turnover rate. Ultimately, loan defaults resulting from these information gaps directly harm the cooperatives' yearly income and profitability, demonstrating that managing information is as critical as managing funds.

Empirical Review

John and Nkiru (2021) analyzed the impact of credit risks on the financial performance of the Nigerian banking sector. Data were collected from 2006 to 2017 and employing regression analysis. The findings revealed that non-performing loans and impaired loan charge-offs had a negative but statistically insignificant effect on capital adequacy and overall financial performance in Nigerian banks.

Adebayo and Okonkwo (2025) investigated loan default and its effects on sustainability and financial performance in cooperative thrift and credit societies in Lagos, Ogun, Kano, Enugu, and Oyo, Nigeria, between 2020 and 2025 using panel data from 180 cooperative societies and fixed regression analysis. The results showed that loan default rates destabilized cash flows and eroded corporate margins after rising rapidly during the COVID-19 epidemic and continuing to stay high.

Ahmed and Udo (2025) investigated the relationship between loan default and financial sustainability in Nigeria between 2020 and 2025. Qualitative and quantitative interviews and financial data analysis was used to select cooperative societies, and analyzed with panel analysis. The findings show that cooperatives with strong credit risk frameworks have fared better despite rising default.

Akinola and Osundina (2025) conducted a comprehensive study on loan default and financial performance in Nigerian Cooperative Thrift and Credit Societies (CTCS) covering the period from 2020 to 2025 and panel data were used for the analysis. The findings indicate the critical role of proactive risk management and regulatory support in maintaining the financial stability of cooperative societies.

Akinyemi and Ezeanya (2025) examined the impact of loan defaults on the profitability and liquidity of cooperative societies in Nigeria during the same period (2020–2025). Employing a mixed-methods approach, including financial ratio analysis and interviews with cooperative managers, and analyzing the data using panel analysis, the study found that increasing loan defaults substantially erode operational income and weaken liquidity reserves, thereby, reduced the credit utilization by cooperative members.

Materials and Method

Study Area

Ijumu is one of the local Government Areas in Kogi State, located in the western senatorial district of the state. The area is predominantly inhabited by Oku Yoruba people, a subgroup of the larger Yoruba ethnic group, known for their rich cultural heritage and strong communal lifestyle. Historically, the people of Ijumu trace their origin to ancient Yoruba settlements, particularly in Ile-Ife, which is widely regarded as the cradle of the Yoruba civilization. Migration accounts suggest that early settlers moved from Ile-Ife and other Yoruba regions to establish communities across the present-day Ijumu areas. The settlers formed independent but closely related communities bound by language, culture and kinships. In the pre-colonial period, Ijumu communities operated under traditional political systems led by local chiefs and elders. These communities maintain relative autonomy but were occasionally influenced by external forces such as the Nupe Kingdom, especially during periods of expansion in the 18th and 19th centuries. The region experienced political and economic interactions, including trade and occasional conflicts, which shaped its historical development in Kogi state of Nigeria. The economy of Ijumu is deeply rooted in agriculture. Farmers in the area cultivate crops such as yam, maize, cassava, and vegetables. Local leadership has actively pushed initiatives—such as the "Green Revolution and Food Security"—to tackle food scarcity and boost local agricultural output.

Method of Data Collection and data Analysis

The study utilized primary data, which were gathered through the administration of structured copies of questionnaires to obtain information from the respondents in the study areas. Additionally, oral interviews were conducted to gather further insights. The descriptive and inferential statistics were used to analyse the collected data. Descriptive statistics such as frequency table, percentages and means were used to describe socio-economic characteristics of the respondents and problems associated with credit default in Ijumu, Nigeria. Inferential Statistics such as linear regression was used to evaluate the effect of high credit utilization and debt-to-income ratio.

Sampling Technique

A multi-stage sampling technique was employed to select respondents for the study. In the first stage, one zone was purposively picked out of three (3) zones in Kogi-State because of their commitment to Cooperative Thrift and Credit Societies. In the second stage, one (1)

Local Government of Area (LGA) was systematically selected from Kogi-west. (Kabba, Lokoja, Ijumu, Yagba) In the third stage one local was randomly selected from the chosen Local Government Areas. In the four stage three communities were randomly selected, which are Iyara, Aiyetoro-Gbede and Ayegunle-Gbede and thirty-nine (39) copies of questionnaire were respectively distributed to each of the selected town in ijumu Local Government Areas making a total of number of one hundred and seventeen (117) respondents.

Table 2: Distribution of Sample size for Ijumu Local Government Areas

S/N	NAMES	SAMPLE DISTRIBUTED	SIZE	RETURNED SAMPLE SIZES
IYARA-IJUMU LGA				
1	Iyara	39		39
2	Aiyetoro-Gbede	39		39
3	Ayegunle-Gbede	39		39
	Total			117

Source: Field survey, 2025.

Analytical Technique

Mode Specification

The Linear regression function

$$Y = f(X)$$

Where Y = Financial Performance (Dependent variable)

F = Functional Relationship

X = Credit Default (Independent variable)

The regression model of the relationship used is presented below:

$$Y = \beta_0 + \beta_1 \text{HCU} + \beta_3 \text{D2I} + \beta_4 + \mu_0 \quad \text{model 1}$$

$$\text{Financial Performance} = \beta_0 + \beta_1 \text{HCU} + \beta_2 \text{D2I} + \mu \dots (1)$$

The simple linear form is stated below:

$$\text{High Credit Utilization on Yearly income} \quad \text{model 2}$$

$$\text{YI} = \beta_0 + \beta_1 \text{CUR} + \beta_2 \text{LRF} + \beta_3 \text{MLA} + \beta_4 \text{NAL} + \epsilon \dots (1)$$

Where: YI = Yearly Income (dependent variable)

CUR = Credit Utilization Ratio

LRF = Loan Rollover Frequent

MLA = Multiple Loan Applications

NAL = Number of Active Loans

β_0 = Intercept term;

$\beta_1, \beta_2, \beta_3, \beta_4$ = Regression coefficients for the independent variables

ϵ is the error term, representing the variability in yearly income not explained by the independent variables.

Debt To Income on Dividend

$$\text{DIVD} = \beta_0 + \beta_1 \text{ETIR} + \beta_2 \text{LRIR} + \beta_3 \text{DBP} + \beta_4 \text{DBF} + \epsilon \dots (2)$$

Where:

DIVD=(Dependent Variables);

ETIR = Expenditure-To-income ratio

LRIR = Loan Repayment-to-Income Ratio

DBP = Debt burden proportion

DBF = Dependency on borrowed funds

β_0 = Intercept term

$\beta_1, \beta_2, \beta_3, \beta_4$ = Regression coefficients for the independent variables

ϵ is the error term, representing the variability profitability not explained by the independent variables.

Result and Discussion

Socio-economic Characteristics of the Respondents

The age distribution of respondents revealed a notable concentration (30%) within the 41–50, 22% of the respondents were between 51 and 60 years, 24% of the respondents fell within 60 years and above while 20% of the participants fell within 31 and 40 years and 4% of the respondents were in the age brackets between 18 and 30 years of age with an average of 41 years old. This demographic characteristic, primarily includes individuals in the early stages of their careers managing family domestic affairs. This stage in family affairs demands financial pressures, such as investments in education, building, and business ventures. This age-related vulnerability to credit default highlights the need for cooperatives to consider age-specific credit default policies, potentially offering centered to repayment terms for younger members. The gender composition of the respondents, with 43% of females while 57% were males. 57% being males, underscored the significant role men play in cooperative thrift and credit societies. Many men utilize loans for entrepreneurial activities or household domestic expenses, thereby contributing to the socio-economic stability of their families, town, villages and communities. The analysis of respondents' marital status revealed that 74% of respondents were married, 3% were single, 6% were divorced, 7% were widows while 10% were widower Married individuals often experience dual financial pressures, so as to balance domestic expenses alongside with loan repayments. On the other hand, divorced members of 6% may face reduced financial resources due to the loss of un-shared income. These dynamics are crucial, as financial instability within either group can increase the risk of default rate. In terms of religion, predominance of Muslims respondents were (50%), 44% of the respondents were Christians, while 5% of the respondents practiced traditional religion and 1% of them were atheist. This showed that respondents practiced different religions. and secondary education also play a significant role in re-shaping financial decision among cooperative thrift and credit societies members. Educational attainment has been shown to have a direct impact on loan repayment Table 1. Indicated that majority of respondents (46%) hold secondary school leaving certificate, 28% of the respondents had primary school education, while 26% of the respondents also possessed tertiary education, which are typically associated with average employment prospects and contribute to poor loan repayment, ultimately leading to more reliable on loan, which may increase likelihood of credit default in the study areas. This result was supported by (Adebayo and Okonkwo, 2025). Working Experience is a predominant factor that prompts people to join cooperative societies in the study area. Statistically, the result from Table 1, postulated that, 12% of respondents had spent 5 years or less, 26% of the respondents also joined cooperatives between 6 and 10 years, 38% of them had been in cooperatives between 11 and 15 years, while 24% of the participants had been a member for 16-20. Position held in cooperative societies is a vital issue that people see as a driving factor to join cooperative societies at grass root level. The

result from also revealed that (80%) of the respondents are loan committees while the rest 30% of the respondents were cooperatives executive who are not members of the loan committees of the CTCS in the study area, ideally, most members love to be in position of power to make decision and take in charge of responsibility Income level is a crucial determinant of loan repayment performance. As shown in Table 2, a significant portion of respondents faced financial vulnerabilities, with (87%) earned between ₦100,000 and ₦250,000. Additionally, (2%) of respondents earned less than ₦260,000-₦350,000. This indicated that few of the respondents were low-income earners in the context of the current high inflation rate. Lower-income individuals are particularly vulnerable to credit default, as essential expenses often take priority over loan repayments. The analysis of respondents' household size revealed 27.4% of the respondents had 1- 4 household size, 22.2% of the respondents had between 5 and 8 members, (47.9%) of respondents managing households with 9 to 13 members, while 1.7% and 0.8% of the respondents had between 14 and 17, and 18 and above members respectively with an average of 6 persons. This indicated that above average (50.4%) of the respondents maintaining between 9 and 18 and above, this implying that there is tendency for the household to face challenge of credit repayment due to larger households and greater financial burden on respondents, often leaving less disposable income available for loan repayments.

Table 2: Distribution of Socio-economic Characteristics of the Respondents

Variable	Options	Frequency	Percentage	Average
Age (years)	18 - 30	5	4.0	41years
	31 – 40	23	20.0	
	41 – 50	35	30.0	
	51 – 60	26	22.0	
	60 & above	28	24.0	
Gender	Male	67	57.0	
	Female	50	43.0	
Marital Status	Single	4	3.0	
	Married	86	74.0	
	Divorced	7	6.0	
	Widowers	12	10.0	
	Widows	8	7.0	
Religion	Christians	51	44.0	
	Muslims	59	50.0	
	Traditionalist	6	5.0	
	Atheists	1	1.0	
Education/Cert	PRY/CERT	33	28.0	
	SSCE/NECO CERT	54	46.0	
	ND/HND/B.SC	28	24.0	
	M.SC/MBA CERT	2	2.0	
	PH.D CERT	0	0.0	

Cooperative membership	Less than or equal 5 Years	14	12.0	
	6 – 10 Years	30	26.0	
	11 – 15 Years	45	38.0	
	16 – 20 Years	28	24.0	8 years
Position Coop	Loan Committee	94	80.0	
	Presidents	4	3.0	
	Supervisory Committee	16	14.0	
	Secretaries	3	3.0	
Household monthly Income (₦)	Less than 100,000	24	20.0	
	100,001–250,000	91	78.0	
	250,001– 350,000	2	2.0	
	350,001 & above	0	0.0	₦287,540
Household Size	< or 4	32	27.4	
	5 – 8	26	22.2	
	9 – 13	56	47.9	
	14 – 17	2	1.7	
	Above 18	1	0.8	6 persons

Source: Field Survey, 2025

Table 3: Effect High Credit Utilization On Yearly Income CTCs

Model	Coeff. Beta	Std. Error	T. Statistics	Probabilities
Constant	-.787	253.53	3.105***	0.000
Credit Utilization Ratio(CUR)	-.661	478.98	1.380	0.000
Loan Rollover Frequency(LRF)	-.512	231.41	2.213**	0.030
Multiple Loan Application(MLA)	-.601	193.84	3.101***	0.000
Number of Active Loan(NAL)	-.411	187.18	2.196**	0.000
R-Square 0.881	<i>F-Statistics</i>			164.156
Adjusted R² 0.648	<i>Durbin Watson</i>		1.511	

Source: field data survey, (2025), Significant level 1%,*** 5%** 10%*Dependent variable Yearly Income(YI); Independent variable. High Credit Utilization (HCU)

Table 3 presents the results of a multiple regression analysis investigating how high credit utilization (HCU) impacts the Yearly Income (YI) of Cooperative Thrift and Credit Societies (CTCSs). The dependent variable was the cooperatives' yearly income, while the independent variables include Credit Utilization Ratio (CUR), Loan Rollover Frequency (LRF), Multiple Loan Applications (MLA), and Number of Active Loans (NAL). The model demonstrates strong explanatory power, with an R-squared value of 0.881, indicating that 88.1% of the variation in yearly income is accounted for by the selected predictors. Adjusted R-squared remains robust at 0.648. The F-statistic of 164.156 confirms the overall model significance at conventional levels, while the Durbin-Watson statistic of 1.511 suggests moderate autocorrelation but within acceptable bounds. Collectively, the results affirm the reliability and validity of the model. The credit utilization Ratio (CUR) has a coefficient of -661, indicating that a unit increase in credit utilization leads to a ₦661 decrease in yearly income, assuming other variables remain constant. This negative relationship is statistically significant at the 1% level ($p = 0.000$), suggesting that high levels of credit usage compromise the financial health of CTCs. Excessive reliance on credit may increase the risk of repayment defaults, interest waivers, or administrative burdens, ultimately diminishing income generation. These findings are consistent with Onah *et al.*, (2024), who observed that while credit access can support performance, overutilization beyond sustainable thresholds

significantly erodes profitability and liquidity. The LRF coefficient of -512 implied that each instance of a loan rollover where members are unable to repay and request loan extensions reduces yearly income by ₦512. The t-value of 2.213 and p-value of 0.030 shows this effect is statistically significant at the 5% level. Frequent rollovers not only delay the recovery of principal and interest but may also result in accumulated bad debts. This aligns with the findings of Okon and Nwosu (2024), who argued that rollovers can artificially inflate the loan book but reduce real cash inflows, thereby weakening cooperative liquidity and income streams. They emphasize the need for stronger loan monitoring and borrower support mechanisms to mitigate rollover dependency. The coefficient for Multiple Loan Applications (MLA) was -601, suggesting that each additional application leads to a ₦601 reduction in yearly income. This variable is highly significant at 1% level, as indicated by a t-value of 3.101 and p-value of 0.000. Multiple borrowing may signal financial desperation or over extension by members, increasing the risk of delinquency and administrative costs. Borrowers with multiple loan applications are more likely to default or delay repayment, especially when debt obligations exceed 75% of their income. The cumulative strain on the cooperative's finances ultimately reduces annual income by up to 21%, driven by high-risk exposure and collection difficulties. The NAL coefficient of -411 indicated that each additional active loan contributes to a ₦411 decrease in annual income. The statistical significance of this effect ($t = 2.196$, $p = 0.000$) suggests that when members hold multiple concurrent loans, the cooperative faces heightened credit saturation. This over-leveraging not only affects the member's repayment ability but also increases the administrative burden on the CTCS. Ibrahim and Adeyemi (2024) support this result, noted that members with two or more active loans often encounter difficulty managing repayment schedules, which leads to restructured loans, reduced interest accrual, and ultimately lower income for cooperatives.

Table 4: Effect of Debt- To -Income on Dividend in CTCS

Model	Coeff. Beta	Std. Error	T. Statistics	Probabilities
Constant	-.621	217.45	2.855***	0.001
Expenditure- to- Income Ratio(ETI)	-.560	259.26	2.160**	0.000
Loan Repayment to Income Ratio (LRIR)	-.553	244.69	2.513***	0.028
Debt Burden Proportion(DBF)	-.541	168.53	3.010***	0.026
Dependency on Borrowed Fund(DBF)	-.793	341.59	2.321***	0.000
<i>F-statistic = 178.137</i>				
<i>Durbin Watson = 1.234</i>				
R-Square = 0.792				
Adjusted R ² = 0.689				

Source: field data survey, (2025). Significant level 1%,* 5%** 10%*Dependent variable Dividend (DIVD); Independent variable. Debt To Income (DTI)**

Table 4 presents the results of a regression analysis assessing the impact of Debt-to-Income (DTI) variables on the Dividend in Cooperative Thrift and Credit Societies (CTCSs). The dependent variable is Dividend (DVD), which reflects members' overall financial well-being, access to essential services, and economic resilience. The model examines how four key indicators Expenditure-to-Income Ratio (ETIR), Loan Repayment-to-Income Ratio (LRIR), Debt Burden Proportion (DBP), and Dependency on Borrowed Funds (DBF) influence the welfare of CTCS members. The model displays strong explanatory power, with an R-squared value of 0.792, indicating that 79.2% of the variation in profitability is explained by the included variables. The adjusted R-squared of 0.689 confirms a good model fit after accounting for degrees of freedom. The F-statistic of 178.137 further validates the overall statistical significance of the model. Then, negative coefficient of -560 indicates that as the ETIR increases, dividend decreases significantly. Specifically, a one-unit increase in this ratio

results in a ₦560 reduction in dividend performance. This outcome implies that when CTCs members or societies spend a larger proportion of their income, fewer resources remain for dividend related factors such as revenue, cost of goods, gross-profit, operating expenses and operating expenses. This finding is statistically significant at the 1% level ($p = 0.001$), with a t-value of 2.160, suggesting strong evidence that high spending relative to income impairs dividend. It supports the results of Chukwuma and Hassan (2024), who found that members with high ETIR often face constrained savings, reduced food security, and limited healthcare access due to high consumption levels and inadequate income. LRIR represented the portion of income used to repay loans. It reflects debt servicing capacity and financial discipline a higher LRIR indicates that members are using a significant share of their income to service loans. The significant negative effect on welfare suggests that this financial obligation places a strain on members, possibly crowding out spending on essential needs like food, healthcare, or education. It may also reduce their ability to invest in productive ventures or meet social obligations, especially in communal societies. The result resonates with findings by Abiola and Mensah (2024), who observed that members dedicating over 40% of their income to loan repayments experience compromised access to healthcare, education, and food. High repayment burdens leave minimal room for discretionary spending or investment in long-term welfare. The DBP has a negative coefficient of -541, meaning that a one-unit increase in the share of income required to service total debt leads to a ₦541 drop in welfare outcomes. This suggests that as members carry more debt relative to income their financial stress intensifies, leaving them unable to meet essential living standards. The t-value of 3.010 and p-value of 0.026 confirms statistical significance at the 5% level, reinforcing the critical role of debt burden in shaping welfare. These findings align with Ekundayo and Moyo (2024), among all variables, Dependency on Borrowed Funds exhibits the strongest negative effect, with a coefficient of -793. This means that for every unit increase in reliance on borrowed funds, members' welfare decreases by ₦793, all else being equal. It reflects how chronic borrowing creates a debt cycle that undermines financial stability. The result is highly statistically significant ($p = 0.000$) with a t-value of 2.321, underlining the severity of over dependence on credit. This finding supports Bello and Karanja (2024), who showed that members with DTI ratios above 65% often fall into repeated borrowing just to meet daily needs, limiting their ability to invest, save, or access social services ultimately leading to a decline in dividends.

Conclusion and Recommendations

The gender composition of the respondents, with 43% of females while 57% were males. 57% being males, underscored the significant role men play in cooperative thrift and credit societies. Many men utilize loans for entrepreneurial activities or household domestic expenses, thereby contributing to the socio-economic stability of their families, town, villages and communities. The analysis of respondents' marital status revealed that 74% of respondents were married, 3% were single, 6% were divorced, 7% were widows while 10% were widower Married individuals often experience dual financial pressures, so as to balance domestic expenses alongside with loan repayments. This variable is highly significant at 1% level, as indicated by a t-value of 3.101 and p-value of 0.000. Multiple borrowing may signal financial desperation or over extension by members, increasing the risk of delinquency and administrative costs. borrowers with multiple loan applications are more likely to default or delay repayment, especially when debt obligations exceed 75% of their income. The cumulative strain on the cooperative's finances ultimately reduces annual income by up to 21%, driven by high-risk exposure and collection difficulties. Members carry more debt relative to income their financial stress intensifies, leaving them unable to meet essential

living standards. The t-value of 3.010 and p-value of 0.026 confirms statistical significance at the 5% level, reinforcing the critical role of debt burden in shaping welfare. Conclusively, these findings demonstrate that late credit repayment behavior reduces credit default among members and improve financial performance of CTCS in the study area. Also, High credit utilization and debt to Income are the major sources of credit default and also threatening the financial standard of CTCSs in Kogi State.

Recommendations

It is therefore recommended that cooperative Thrift and Credit Societies in the study area should enforce stricter credit eligibility criteria and implement structured debt repayment plans. Also, Cooperative Thrift and Credit Societies should establish their members with self-home make products and member credit education should be taken seriously, so as to teach members on how to utilize credit and generate revenue. More so, members need to know the principle of cooperative prudent so as to know how to manage money and debt as the same time.

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EFFECT OF DIGITAL FORENSIC ACCOUNTING ANALYTICS ON DETECTION AND DISRUPTION OF MONEY LAUNDERING ACTIVITIES IN NIGERIAN FINANCIAL INSTITUTIONS

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Abstract

The introduction of digital forensic accounting in financial institutions has emerged as an important area of specialization due to its critical role in fraud management and financial crime prevention. This study evaluates the effect of digital forensic accounting on fraud management in selected financial institutions in Nigeria. To achieve this objective, primary data were collected through questionnaires administered to relevant experts in selected financial institutions in Kogi State, Nigeria. The data collected were analyzed using both descriptive and inferential statistical techniques with the aid of the Statistical Package for the Social Sciences (SPSS Version 26). The findings revealed that digital forensic investigation has a significant positive effect on both money laundering detection and money laundering disruption within financial institutions. The study further found that the application of digital forensic accounting has contributed substantially to the reduction of fraudulent activities, particularly money laundering, in Nigeria's financial sector. The study concludes that digital forensic accounting is an effective tool for enhancing fraud management and strengthening the integrity of financial institutions. Consequently, the study recommends that regulatory and supervisory agencies, particularly the Central Bank of Nigeria, the Economic and Financial Crimes Commission, and other relevant government bodies, should periodically review and update the operational guidelines governing digital forensic accounting practices. Such reforms would enhance the capacity of financial institutions to detect and prevent money laundering activities, improve regulatory compliance, and strengthen the effectiveness of fraud mitigation mechanisms across the Nigerian financial system.

Keywords: Digital forensic investigation, financial institution, money laundering detection, money laundering disruption, multiple regression analysis

Introduction

Digital forensic analysis has gained sufficient concern and attention in recent years as one of the major critical tools in addressing issues related to fraud management such as fraud detection, financial irregularities and enhancing financial accountability. The financial institution is expected to operate with proficiency and high levels of integrity, transparency and accountability, such that financial records and transactions are carried out and conducted with an efficient mechanisms and rigorous oversight that are setup to ensure that institutional money especially funds are appropriated, deployed and utilized effectively for the purpose they are meant for and not laundered (Okonkwo & Okegbe, 2025).

However, fraudulent acts has seriously jeopardize the stability and reputation of institutions, eroding trust and impeding the overall advancement and development of the economy and allowing for money laundering through the financial institution. It is important to note that the unfair monetary transactions and the inaccuracy or inconsistency of financial records may be attributed to either errors or fraud, as the distinction was made based on the intentional criterion. While the error occurs in the accounting records, money laundering occurs deliberately through the falsification in operations, records, and documents. It is therefore important for the financial institutions to develop and adopt measures that will timely detect potential frauds and prevent them before its adverse negative effects on the institution. A potent strategy in achieve this, involves the use of digital forensic analysis approaches, a specialized accounting field combining auditing and investigative skills to detect and prevent fraudulent activities and transactions such as money laundering (Almubaydeen, et al., 2024).

The introduction of digital forensic analysis in the financial institution management has become a strong field of specialization for corporate organizations because of its relevance in fraud management. Digital forensic analysis are built on the establishment of functional structures in the public institutions, strict adherence to rule of law, implementation of accountability and transparency tools in financial transactions with the view to avoiding fraudulent practices within the system. In a view to fulfilling these financial transparency and accountability obligations in the financial institutions, relevant stakeholders in the sector focus on deploying and implementing digital forensic analysis approaches (Okorafor, et al., 2024).

Digital forensic analysis requires the utilization of specialized skills to identify inconsistencies between the actual and anticipated financial processes, activities and performance, such as fraud detection and prevention. Since the inception of digital forensic analysis in the United States in the late 19th century, it has become widely acknowledged as a vital instrument in the fight against financial frauds and crimes in public institutions (Daas & Zaid 2024; Alaoubi & Almomani, 2021).

The rate of money laundering in Nigeria's financial institutions is at increase, resulting in huge financial losses and also harming the reputation of institutions. Even with the notable advancements in digital forensic accounting in recent years, financial fraudulent activities such as money laundering, misappropriation and embezzlement still plagued Nigeria's financial institution. Advanced economies such as the United States, France, Australia, Germany, United Kingdom, China, Malaysia, among others have experienced sufficient development in the need for this service and they have embraced it completely (Hassan & Sanni, 2023). However, just like in most developing economies of the world, the full potential of digital forensic analysis in the Nigerian financial institutions has not been fully attained owing to a number of factors which include the prevalence of money laundering, lack of trained forensic specialists and insufficient regulatory/standard frameworks (Adam, et al., 2024; Akinadewo, et al., 2024).

Currently, the integrity and functional operations of financial institutions have been compromised due to a widespread and continuous rise in fraudulent activities and other non-professionalism in the generation, communication and storage of records and information. Hence, money laundering does not only hinders effective management, but also exerts strain on the overall national development (Hassan & Sanni 2023). There has been prevalence and frequent money laundering activities in financial institutions in Nigeria. Consequent of the relevance of the application of digital forensic analysis in fraud detection and prevention,

several studies have explored the role of digital forensic analysis in varying contexts, especially in among developing economies like Nigeria. A review of the studies conducted by Eniola and Popoola (2024), Frankline, et al. (2022) and Onuora, et al., (2022) revealed several representation that forensic accounting have positive and significant impact on financial accountability in the financial institution. Some other studies such as Garba (2024), Okorafor, et al., (2024); Edward, (2021); Eko, (2020) have also showed inconsistent, mixed and inconclusive roles of forensic accounting in fraud detection and prevention.

Even though these studies reveal valuable insights into the roles of digital forensic accounting in institutions in Nigeria, a significant gap in the literature emerges due to the inconsistency in the findings in the context of financial institution in Nigeria's. It is against this backdrop that this study premised on determining whether deployment of digital forensic analysis has had impact on detection and disruption of money laundering in Nigeria's financial institution. Consequently, the objectives of this research is to evaluate the effect of digital forensic analysis on detection and disruption of money laundering in Nigeria's financial institution.

However the specific objectives of this research are as follows:

1. to find out the effect of digital forensic investigation on detection of money laundering in Nigeria's financial institution.
2. to find out the effect of digital forensic investigation on disruption of money laundering in Nigeria's financial institution

Even though, studies have been conducted on the role of forensic accounting on fraud management, however this study advanced knowledge on the extent to which digital forensic accounting has impacted on detection of money laundering in Nigeria's financial institution. Hence, it provides under more insight on how the knowledge and skills of the financial institution in the areas of investigations and litigations can influence fraud within the sector. This study is useful to students and researchers who will want to carryout studies or readings on forensic analysis, fraud detection and prevention and other related areas in corporate institutions by not just serving as resource materials but also provide guide on the existing knowledge with view to providing suggestive areas of further study. This study also fill the gap in knowledge by providing a theoretical insight as regard the direction and extent of the impact of forensic analysis on fraud detection and prevention.

Literature Review

The literature review focuses on the issues related and relevant to this study. The literature review discussed on the following headings: conceptual review, theoretical review and empirical review accordingly.

Conceptual review

The conceptual review of this study is premised on the two main variables of this study: dependent variable (money laundering detection and money laundering disruption) and the independent variable (forensic analysis, i.e. forensic investigation and forensic litigation).

Digital Forensic Accounting

Digital forensic analysis has evolved significantly and more recently with the technological advancements and standard regulatory frameworks, requiring forensic accountants to stay up-to-date with the emerging compliance requirements and fraud schemes (Lee & Kim, 2024).

These recent understanding of forensic analysis underscore the growing importance of field in safeguarding financial straightforwardness and integrity and the support for legal investigations globally. It can be seen from various definitions that forensic analysis is a specialized scientific field that combines accounting, auditing, and investigative skills to detect, evaluate, analyze and report financial misrepresentations and frauds. It involves examining financial data and transactions to uncover irregularities and provide evidences for legal and regulatory proceedings.

Digital forensic analysis is the practice of applying forensic accounting, auditing, and investigative talents to detect and explore fraud and other financial misrepresentations in financial records and documents. According to Adams and Suleiman (2021), digital forensic analysis is an area of specialization of forensic accounting that focuses on scrutinizing financial data to find evidence of financial crimes such as fraud, embezzlement, or corruption. According to Jones and Patel (2023), digital forensic analysis is the use of accounting skills to evaluate financial statements and transactions for irregularities in order to provide evidence in legal and regulatory investigations.

In this study therefore, digital forensic accounting in financial institution is summarized as specialized field within accounting that uses digital investigative technique in financial records or transactions with the aim of revealing financial frauds or resolving financial inconsistencies. The digital forensic investigation is a method of forensic accounting that uses a combination of accounting knowledge and investigation skills to identifying the fraudulent activities and financial misconducts in a corporations (Hopwood, et al., 2018). It combines some basic accounting skills with investigative approaches and methodologies, making it crucial and easy for detecting financial misconducts. Digital investigative (forensic) accountants are therefore very essential in analysing financial accounts, records and transactions to detect fraudulent conducts and provide evidence legally (Robinson & Khatib 2024).

Money Laundering Detection

Money laundering detection is the identification of money laundering or fraudulent activities within a corporate institution, using various tools, techniques and methodologies to discover and uncover inappropriateness, irregularities and general misconducts. According to Garcia and Martinez (2024), money laundering detection is therefore the process of identifying instances of fraudulent activities within a system or an organization. The process of money laundering detection relies on both proactive measures which include robust internal control mechanisms and, reactive measures which include forensic accounting investigations to determine, detect and mitigate fraud related to financial records and transactions. However, Anderson and Brown (2023) define money laundering detection as an ongoing process of monitoring and evaluating financial transactions with the aim to identifying suspicious patterns or activities that may give an indication of fraudulent behaviour.

Money Laundering Disruption

Money laundering disruption practice is a fundamental and important aspect of forensic analysis process, which serve as a risk management tool that guarantees total adherence to established standards, rules and regulatory provisions, hence promoting the integrity of financial reporting in any corporation (Simeunović, et al., 2016 as cited in Garba, 2024). Therefore, money laundering disruption refers to the execution of measures or approaches aimed at mitigating the negative effects or consequences associated with financial

misconduct and irregularities in not just the spending of finance but also in the reporting of that in financial records. Furthermore, Enofe, et al. (2015), define money laundering disruption as the execution of certain and deliberate plans in order not to allow fraudulent activities to take place in any corporate setting. The prevention therefore must come before the attempt for the fraud. Afriyie, et al. (2022) further posit that money laundering disruption is the process of putting into practices plans to identify and detect fraudulent transactions and stop them from affecting the stakeholders, client and the institution's money, integrity or reputation. As financial institutions continue to digitize using forensic accounting, the need for strong fraud protection strategies will only be on the increase (Alamry, et al. 2022).

Theoretical Review

In this study the fraud triangle theory and fraud preventive theory are reviewed and used to underpin this study.

Fraud Triangle Theory

The hypothesis, first posited by Cressey in 1971, delineates three primary variables that contribute to the frequency of crime which include, rationalisation, opportunity and pressure. The theory posits that the presence of these three factors are necessary for the theory to be valid. Cressey (1971) posited in his research on fraud and criminology that individuals engage in various activities with certain motives, among which fraud is included. Individuals that engage in fraudulent activities against individuals or organisations do so with a distinct motive of self-advantage. The study findings clearly identified three primary drivers, namely pressure, opportunity, and rationalisation. According to Mansor and Abdullahi (2015), the author discovered that certain circumstances exerted pressure on individuals, leading them to engage in fraudulent activities. In his work, Lister (2007) referred to pressure as one of the fundamental factors involved in the commission of fraudulent activities. The pressure experienced by individuals might originate from internal sources, external sources, or even employment-related stress imposed by others in positions of control.

Fraud Preventative Theory

The fraud preventative theory was propounded by William, S. Albrecht. The theory is a conceptual framework that was designed in order to understand and mitigate the possible occurrence of frauds within corporations/organizations. According to the theory, fraud can be effectively and efficiently prevented through the formal establishment of deliberate and robust internal control mechanisms, fostering ethical organizational culture and comprehensive employee training and development (Albrecht, et al., 2022). Albrecht further emphasizes the significance of vigilance and effective proactive measures in the identification of potential fraud risks just before they materialize or happen and result in actual fraudulent acts.

The fraud preventative theory's foundation is built on the premise that the prevention of fraud is more cost-effective, cheaper and beneficial than identifying, detecting and addressing its post-occurrence. The main tenets of fraud preventative theory are: continuous monitoring, the implementation of stringent internal control mechanisms, and fostering an ethical work environment. Internal control mechanisms are policies and procedures that organizations establish to safeguard their assets, promoting operational efficiency and ensure accurate financial reporting (Bhasin, 2020). The continuous monitoring approach involves regular analysis, reviews, audits, and assessments with the view to identifying any suspicious or anomalies activities timely. Lastly, on the ethical working environment which involves

cultivating through leadership commitment, an ethical training programs, and the establishment and implementation of a clear codes of conduct. These components however, work synergistically to creating a barrier to fraud or building organizational framework that resist fraud.

Empirical Review

Benimana and Mbonigaba (2026) aimed at evaluating the impact of forensic accounting measures on the detection and prevention of different forms of financial fraud. In order to achieve these objectives, the study utilized a survey research design by gathering data from primary sources. The analysis of the data was conducted using least square regression technique to test the hypotheses at 5% level of significance. The analysis of the results of the overall regression model indicated a positive impacts on the detection and prevention of financial fraud. While the individual regression models for forensic investigation measures, showed a positive impacts on detection of financial frauds. Consequently, the study's findings will be useful for decisions making process for many stakeholders, such as the regulatory authorities and, external and internal auditors.

Okorafor et al., (2024) in their study investigated whether forensic accounting skills have influence on fraud investigation in the electricity distribution firms in Nigeria. This was conducted by focusing on the 'Enugu Electricity Distribution Company' (EEDC). The study used a descriptive survey research approach, with a sample size of only fifty-two. The analysis of the data was conducted using multiple regression technique to test the hypotheses at 5% level of significance. The finding of the study revealed that forensic accounting skills have significant influence reduction in fraud and facilitate fraud investigations in EEDC. It is therefore concluded that forensic accounting skills of the auditors should further be enhanced so as to ensure that frauds are adequately investigated and prevented in the company.

Eniola and Popoola (2024) investigate the impact of forensic accounting approaches, with specific attention on fraud examination, fraud investigation and fraud prevention on the financial transparency and accountability in the banking sub-sector in Nigeria. The study used a field survey research design where data were collected from secondary and primary sources with specific emphasis on the use of questionnaire administration to staff in the selected banks. The study analysed ninety eight (98) copies of filled questionnaire using frequency and regression (multiple) analysis to draw a predictions on the relationship between forensic accounting approaches and financial transparency and accountability. The findings of the study indicated that fraud investigation practices significantly influence transparency and accountability in Nigeria banks.

Onyema, et al., (2024) examined the impact forensic accounting has had on fraud management in selected DMBs in Nigeria. In order to achieve this objective, the study used a survey research design with a questionnaire designed in a five-point scale to collect the data used for the study. Both regression analysis and analysis of variance were used to analyze the data retrieved from the survey. The results of the study revealed that forensic investigation has had a statistically positive impact on fraud prevention and fraud reduction in DMBs in Nigeria. The study conclude that deploying forensic investigation approaches would save the bank the heavy losses they experience due to fraud.

Adam et al., (2024) investigated the specific effects of forensic accounting on prevention of financial frauds in institutions in Nigeria, with a specific focus on the financial institution, First Bank of Nigeria (FBN). The study develop specific objectives which include how to

utilize it to combat financial frauds and malpractices. In order to achieve this broad objectives, the study utilized an ex-post facto research design by gathering data from both secondary and primary sources. The analysis of the data was conducted using multiple regression technique to test the hypotheses at 5% level of significance. The findings of the study emphasize that improving the forensic investigation can sufficiently reduce financial frauds, in FBN. The study conclude that forensic accounting is indispensable in the financial practices in financial institutions.

In addition, the effect of forensic accounting measures on fraud identifications and preventions in Nigeria's listed DMBs was examined by Ojo-Agbodu, et al., (2022) where they use 115 people from selected DMBs operating in Nigeria. The respondents involved in the study include the internal control officers, head tellers/cash officers and branch operation managers. Questionnaires were administered as part of the study's tool of data collection using proportional random sampling technique. The results of the linear regression analysis indicated a significant positive association between forensic litigation measures and fraud detection. The study also finds out, however, that forensic litigation measures had insignificant effect in fraud detection in DMBs' branch operations.

Emmanuel, et al., (2022) investigated the nexus between forensic auditing and fraud management in public sector institutions in Port Harcourt, Nigeria. . In order to achieve this broad objectives, the study utilized an ex-post facto research design by gathering data from both secondary and primary sources. The analysis of the data was conducted using percentage and Pearson correlation techniques in the study. The study revealed that there is a direct positive relationship fraud detection and forensic investigation and therefore concluded that the management of institutions should ensure that forensic audits are carried out in their organization at least annually as this would help in the prevention of 'white-collar' crimes in these institutions.

Agboare (2021) in a study explored the effect of forensic accounting on the discovery of financial inappropriateness within the Nigerian listed DMBs in Nigeria. The study used a descriptive survey research approach, and the analysis of the data was conducted using multiple regression technique to test the hypotheses at 5% level of significance. The study reveal that implementing forensic accounting approaches/methods, such as conducting investigations, examining financial transactions and covering up for missing accounting records will considerably boost the ability to identify and address financial crimes in the listed DMBs in the country.

Eko, et al., (2020) evaluated the forensic accounting measures used to preventing and detecting frauds in commercial banks in Nigeria. The study focused on data processing, trend analysis and ratio analysis which are usually used to preventing and detecting frauds in commercial banks. The data collected by the study were analyzed using least square regression models. The findings indicated that by applying the forensic investigation measures, there is significant improvement in the detection frauds in commercial banks. The study further showed that most of the commercial banks' workers lack the ability, capacity and awareness of data processing techniques which would have further help in fraud detection.

Ojukwu, et al., (2020) conducted research on forensic accounting and fraud detection focusing on University of Technology, Cross-Rivers State, Nigeria where they seek to determine how forensic accounting influence fraud detection. In order to achieve this broad objectives, the study utilized an ex-post facto research design by gathering data from both

secondary and primary sources. The analysis of the data was conducted using multiple regression technique to test the hypotheses at 5% level of significance. The results of the finding reveals that there is relationship between forensic investigation and fraud detection. The research therefore concludes that forensic accounting should be adequately incorporated into tertiary institutions' systems in Nigeria in order to end financial and related crimes.

Materials and Method

This chapter presents the research design, population, sample size, sampling techniques, instruments, data collection method, validity and reliability of instruments, method of data analysis and model specification of the study.

Research Design

This study explored and adopted quantitative survey design. Quantitative research design is that design that has to do with collecting numerical data with the aim to describing and understanding a particular phenomenon. This research design allows for a high level of objectivity, standardization in data gathering, generalizability, validity and reliability through rigorous approaches. In this study the form of quantitative research design utilized is the cross-sectional survey research design.

Population of the Study

The population of the study consists of all the firms operating in the financial institution listed on the Nigeria Exchange Group (NXG), with a specific focus on DMBs in Nigeria. This encompasses all deposit money banks that are publicly listed and actively traded on the NXG.

Sample Size and Sampling Technique

The study sampled 380 staff members from four listed DMBs in Nigeria. Therefore, the sample size for this research comprises 320 individuals who are Accountants or audit staff within these selected banks. The selected banks are First Bank, UBA, Guaranty Trust Bank, and Zenith Bank branches in Kogi State. The study employed purposive sampling technique to select the sample of staff of these relevant departments. Purposive sampling is a non-random sampling method where the researcher selects specific individuals or elements from the population based on predetermined criteria. In this case, the criteria for selection include being an employee or staff of the relevant departments (accounting, audit and finance) of the selected DMBs in Nigeria.

Sources of Data

The sources of data used by this study are mainly the primary data source, however the secondary sources are also used in the literature review and other relevant areas. In this study, the primary data is questionnaire. Questionnaire contains a set of purposeful and deliberate questions that are meant to obtain specific current information on a specific matter. In addition, the use of questionnaire allows the research to reach out to several respondents across several institutions in real time and with relatively little resources.

Methods of Data Analysis

This study used Statistical Package for the Social Sciences (SPSS) as the software for the data analysis. SPSS is a very powerful software tool of analysis that allows for nominal and interval data analysis. This study used the software for analysis because it provide a wide range of statistical procedures such as inferential and advanced methods of regression which are required by this study's data to be able to achieve the objectives and hypotheses testing. In addition, SPSS as software is also easy to use and highly adaptable and compatible with the nature of the data obtained for this study. The choice of the multiple regression analysis was because it offers the technique that model the relationship between continuous outcomes and multiple predicator variables. Also, the multiple linear regression analysis measures the linear relationship, direction and impact of predicator variables (digital forensic accounting (DFA)) on the continuous outcome variables (money laundering detection (MLDe) and money laundering disruptions (MLDi)).

Model Specification

This study used multiple linear regression analysis and hence this study adopted the model of Adebayo, et al., (2024) with certain modifications to suit this study

The function for this study is therefore given in equation 1:

$$\text{MLDe, MLDi} = f(\text{DFA}) \quad \text{.....1}$$

The model specification of study is as shown in equation 2a and 2b.

$$\text{MLDe} = \beta_a + \beta_a(\text{DFA}) + \varepsilon_a \quad \text{.....2a}$$

$$\text{MLDi} = \beta_b + \beta_b(\text{DFA}) + \varepsilon_b \quad \text{.....2b}$$

Where: β = Interception of the line, β_a, β_b = Slope and; ε = Error terms

Based on the model specifications, the following hypotheses are developed to be tested in this study.

- H₀₁: Digital forensic investigation has no significant effect on money laundering detection in financial institutions in Nigeria.
- H₀₂: Digital forensic investigation has no significant effect on money laundering disruption in financial institution in Nigeria.

Results and Discussion

In this study, Cronbach alpha reliability coefficient of 0.7 points and above (on a scale of 1) was used to measure the internal consistency or average correlation of items in a survey instrument to gauge its reliability. Reliability of the instrument was tested using the Cronbach's coefficient alpha (α), computed, the scores were correlated and a correlation coefficient of 0.875 which was greater than 0.7 was obtained. Then the reliability of the instrument was considered high enough to judge the instruments as reliable for this study.

Correlation Analysis

The correlation analysis is used to determine the relationship between the proxies of the dependent variables (money laundering detection and money laundering disruption) and the independent variables (digital forensic investigation). The essence of the correlation analysis is to measure the relationship between digital forensic investigation and money laundering detection and; between digital forensic investigation and money laundering disruption.

Table 1: Correlation Analysis

Items	DFI	MLDe	MLDi
DFI	1.000		
MLDe	0.824** 0.000	1.000	
MLDi	0.779*** 0.000	0.717** 0.000	1.000

Note: ***p<0.001 level of significance

Source: Researcher's compilation (2026)

The correlation analysis in Table 1 indicates following: First, that digital forensic investigation has significant positive relationship with money laundering detection, this is indicated by ($r = 0.824$; $p = 0.000$). This is an indication that money laundering detection will increase if digital forensic investigation increases and vices versa. Also, digital forensic investigation has significant positive relationship with money laundering disruption, this is indicated by ($r = 0.779$; $p = 0.000$). This is an indication that money laundering disruption will increase if digital forensic investigation increases and vices versa.

Test of Hypotheses

This study conducted a multiple regression analysis on the data in order to determine how fit the model is and to determine the extent of the effect of the independent variable proxies (i.e. digital forensic investigation) on the dependent variable proxies (money laundering detection and money laundering disruption). The results of the regression analysis is presented in Table 2.

Table 2: Model 2a Analysis for Hypotheses

Items	Values	t-value	p-value
Constant		1.161	0.000
F-stat	106.911		
Df	319		
R	0.770		
R square	0.751		
Adjusted R square	0.655		
Std. Error of the Estimate	0.456		
Durbin-Watson	1.973		
Digital forensic investigation		1.863	0.001

Source: Researcher's compilation (2026)

Table 2 provides the model 2a summary for the regression analysis conducted to assess the effect of the predictor (digital forensic investigation) on one of the dependent variables (money laundering detection). The R value of 0.870 indicates an approximately 87.0% relationship between money laundering detection and the predictors of digital forensic

investigation. This value showed a very strong relationship between money laundering detection and the predictors. The R^2 value of 0.751 indicates that approximately 75.1% of the variability observed in money laundering detection can be accounted for by the predictor variables incorporated (digital forensic investigation) into the regression model. The interpretation of R^2 suggests that the model of the study provides a reasonably good fit to the observed data, capturing a sufficient part of the underlying variability in fraud detection. However, it's essential to recognize that approximately 75.1% of the variability in fraud detection remains unexplained by the predictor variables (digital forensic investigation) included in the model but by other variables not captured.

This adj. R-squared value of 0.655 indicates that approximately 65.5% of the variability observed in fraud detection is explained by the predictor variables (forensic investigation and forensic litigation) included in the model, after adjusting for the total number of the predictors. The interpretation of the adjusted R-squared reveals that, even after accounting for the complexity that exist in the model due to the inclusion of multiple predictors, a significant portion of the variability in fraud detection is still captured by the model of the study. It is important however, to note that approximately 55.5% of the variability in fraud detection remains unexplained by the predictors included in the model of the study, even after adjustment.

This standard error of the estimate value of 0.456 indicates the average amount of error in predicting money laundering detection is based on the regression model. In practical and real terms, it signifies that, the actual money laundering detection values, on average, deviate from the predicted values by approximately 0.456 units. However, this lower standard error according to the estimate suggests that the study's model's predictions are quiet precise, with the observed values closely related and aligned with the predicted values. Also in Table 4.2, the Durbin-Watson (D-W) statistic is shown as 1.973, which is approximately the ideal value of 2 suggests that there is no autocorrelation present in the residuals of the regression model of this study. This value of D-W statistic provides the assurance that the assumptions that underline the regression model, particularly with respect to the independence of residuals, are met. This analysis therefore reinforces the credibility and reliability of the model's findings and improve on the confidence in its ability to accurately predict and capture the effects of the predictor variables.

For the digital forensic investigation and money laundering detection, the t-statistic and p-value indicates a positive and significant effect ($t = 1.161$; $p = 0.000$) as shown in Table 4.2. Consequently the null hypothesis one: "Digital forensic investigation has no significant effect on money laundering detection in financial institutions in Nigeria" based model 2a is rejected ($p < 0.05$), that is, digital forensic investigation has significant effect on money laundering detection in financial institution in Nigeria. Based on the t-statistic for every 1% increase in forensic investigation there is an increase of 1.161% in money laundering detection by financial institution in Nigeria. The finding of this study is consistence with the study of Oraby (2025) that evaluated the effect of forensic analysis measures on the detection and prevention of different forms of financial fraud and revealed that forensic analysis measures have positive effects on the detection and prevention of financial fraud in the institution. Similarly, this study is supported by Ojo-Agbodu, et al., (2022) who used selected DMBs in Nigeria and the result indicated a significant positive association between forensic analysis measures and fraud detection in DMBs. Finally, the finding of this study is supported by Eniola and Popoola (2024) that investigated the impact of forensic analysis approaches, and

indicated that fraud investigation practices significantly influence transparency and accountability in financial institution in Nigeria.

Table 3: Model 2b Analysis for Hypotheses

Items	Values	t-value	p-value
Constant		2.760	0.000
f-stat	123.287		
df	319		
R	0.840		
R square	0.705		
Adjusted R square	0.653		
Std. Error of the Estimate	0.634		
Durbin-Watson	2.001		
Forensic investigation		2.322	0.000
Forensic litigation		1.500	0.135

Source: Researcher's compilation (2026)

Table 3 provides the model 2b summary for the regression analysis conducted to assess the effect of the predictors (digital forensic investigation) on the dependent variable (money laundering disruption). The R value of 0.840 indicates an approximately 84.0% relationship between money laundering disruption and the predictors of digital forensic investigation. This value showed a considerable strong relationship between money laundering disruption and the predictors. The R^2 value of 0.705 indicates that approximately 70.5% of the variability observed in money laundering disruption can be accounted for by the predictor variables incorporated (digital forensic investigation) into the regression model. The interpretation of R^2 suggests that the model of the study provides a reasonably good fit to the observed data, capturing a sufficient part of the underlying variability in money laundering disruption. However, it's essential to recognize that approximately 29.5% of the variability in money laundering disruption remains unexplained by the predictor variables (digital forensic investigation) included in the model but by other variables not captured.

This adj. R-squared value of 0.703 indicates that approximately 70.3% of the variability observed in money laundering disruption is explained by the predictor variables (digital forensic investigation) included in the model, after adjusting for the total number of the predictors. The interpretation of the adjusted R-squared reveals that, even after accounting for the complexity that exist in the model due to the inclusion of multiple predictors, a significant portion of the variability in money laundering disruption is still captured by the model of the study. It is important however, to note that approximately 29.7% of the variability in money laundering disruption remains unexplained by the predictors included in the model of the study, even after adjustment.

This standard error of the estimate value of 0.634 indicates the average amount of error in predicting money laundering disruption is based on the regression model. In practical and real terms, it signifies that, the actual money laundering disruption values, on average, deviate from the predicted values by approximately 0.634 units. However, this lower standard error according to the estimate suggests that the study's model's predictions are quiet precise, with the observed values closely related and aligned with the predicted values. Also in Table 4.9, the Durbin-Watson (D-W) statistic is shown as 2.001, which is above and around the ideal value of 2. This D-W result suggests that there is no autocorrelation present in the residuals of the regression model of this study. This value of D-W statistic provides the assurance that

the assumptions that underline the regression model, particularly with respect to the independence of residuals, are met.

H₀₂: Digital forensic investigation has no significant effect on money laundering disruption in financial institution in Nigeria.

For the digital forensic investigation and money laundering disruption, the t-statistic and p-value indicates a positive and significant effect ($t = 2.760$; $p = 0.000$) as shown in Table 4.3. Consequently the null hypothesis three: “Digital forensic investigation has no significant effect on money laundering disruption in financial institution in Nigeria” based model 2b is rejected ($p < 0.05$), that is, digital forensic investigation has significant effect on money laundering disruption in financial institution in Nigeria. Based on the t-statistic for every 1% increase in forensic investigation there is an increase of 2.760% in money laundering disruption by financial institution in Nigeria. This finding is consistence with the finding of Onyema, et al., (2024) that examined the effect forensic analysis has had on fraud management and arrived at forensic analysis had statistically positive impact on fraud detection, money laundering disruption and fraud reduction. Similarly, Okorafor et al., (2024) also supported the finding of this study. Finally, the finding of this study is consonants with Ojukwu, et al., (2020) that revealed direct relationship between forensic analysis and internal control leading to money laundering disruption.

Conclusion and Recommendations

This study concludes that digital forensic accounting have significant and positive effect money laundering detection and disruption in financial institution in Nigeria. This implies that the digital forensic analysis approaches used in financial institution in Nigeria has contributed to the detection and subsequent disruption in financial frauds in the institutions. This study therefore recommends that: First, the financial institution institutions should make adequate investments in advanced digital fraud detection mechanisms or technologies and also provide for continuous training for forensic experts that can significantly enhance money laundering detection and prevention. Second, the regulatory authorities in the financial institution should make it a policy and as a matter of prerequisite requirement for all the financial institution institutions in the country to establish a functional forensic unit or section to monitor financial activities with the aim to managing fraud.

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ENHANCING YOUTH EMPLOYABILITY THROUGH DIGITAL SKILLS IN VOCATIONAL AND ENTREPRENEURSHIP EDUCATION IN NIGERIA

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Abstract:

This study examines the role of digital skills in enhancing youth employability through vocational and entrepreneurship education within the context of an increasingly digitalized global economy. The transformation of labour market demands has made digital competencies essential for both paid employment and self-reliance. However, concerns persist regarding the inadequate integration of digital skills within vocational and entrepreneurship education programme in developing countries such as Nigeria. The study adopted a descriptive survey research design involving students and instructors in vocational and entrepreneurship education programme. Data were collected using a structured questionnaire and analysed using mean and standard deviation. Findings revealed that respondents possess a relatively high level of digital skills, which significantly enhance employability, job readiness, and entrepreneurial capacity. However, challenges such as inadequate ICT infrastructure, limited access to digital resources, and insufficient instructor competence were identified as major constraints. The study further identified key strategies for improving digital skills acquisition, including curriculum integration, provision of ICT infrastructure, and continuous training of instructors. The study concludes that effective integration of digital skills into vocational and entrepreneurship education is essential for improving youth employability and recommends increased investment in digital infrastructure and capacity development.

Keywords: Digital economy. Digital skills, Entrepreneurship education, Vocational, education, Youth employability

Introduction

The transformation of the global economy through digital technologies has significantly altered the skills required for employability in the twenty-first century. The rapid advancement of digital innovations—including automation, artificial intelligence, and online platforms—has redefined job roles and created new opportunities while rendering some traditional skills obsolete. As a result, the ability to effectively utilize digital technologies has become a fundamental requirement for participation in modern labour markets.

According to the Organisation for Economic Co-operation and Development (2021), the demand for digital skills continues to rise as economies increasingly transition towards

knowledge-based and technology-driven systems. This shift underscores the growing importance of digital competence as a key driver of productivity, innovation, and economic growth.

In the Nigerian context, the implications of this global transformation are particularly significant. Despite the expansion of educational opportunities and increased government focus on human capital development, youth unemployment remains a persistent socio-economic challenge. Vocational education and entrepreneurship education have been widely recognized as strategic mechanisms for equipping young people with practical skills necessary for self-reliance and job creation. Vocational education emphasizes the development of occupation-specific technical competencies, while entrepreneurship education focuses on fostering innovation, creativity, and business start-up capabilities (Okolie et al., 2020). These educational pathways are expected to play a crucial role in reducing unemployment and promoting sustainable economic development.

However, the effectiveness of vocational and entrepreneurship education in achieving these objectives is increasingly dependent on their capacity to integrate digital competencies into teaching and learning processes. In a digitally driven economy, digital skills—such as information and communication technology (ICT) literacy, digital communication, data management, and online business operations—are essential for both employability and entrepreneurial success. The World Bank (2020) emphasizes that digital skills are critical for enhancing individuals' ability to access job opportunities, improve productivity, and participate effectively in the digital economy. Without these competencies, graduates of vocational and entrepreneurship programme may struggle to compete in both formal and informal labour markets.

Despite the growing recognition of the importance of digital skills, evidence suggests that many vocational and entrepreneurship education programme in developing countries, including Nigeria, continue to operate with limited integration of digital technologies. This situation is often attributed to factors such as inadequate ICT infrastructure, outdated curricula that do not reflect current industry demands, and insufficient teacher preparedness to deliver digitally oriented instruction (Agu et al., 2022).

Consequently, graduates are frequently inadequately prepared for the realities of the modern workplace, leading to a mismatch between the skills acquired through education and those required by employers. This persistent skills gap raises concerns about the capacity of existing educational systems to effectively address the challenges of youth unemployment in a digital age. It also highlights the need to re-examine the role of digital skills within vocational and entrepreneurship education as a means of enhancing employability outcomes. Therefore, this study investigates how digital skills acquired through vocational and entrepreneurship education can enhance youth employability, with a view to providing empirical evidence that can inform educational policy and practice.

Statement of the Problem

Unemployment remains a critical socio-economic challenge in Nigeria, particularly among young people and adults. According to the World Bank (2023), approximately 35% of Nigerians aged 15 to 34 are unemployed, available for work, and actively seeking employment or are engaged in work for fewer than 20 hours per week. In addition, Virk et al. (2023) report that about 28% of the younger workforce is underemployed, working between

20 and 39 hours weekly. These figures highlight not only the high rate of unemployment but also the prevalence of underemployment, indicating the inability of the labour market to fully absorb and utilize the available workforce.

In response to this challenge, vocational and entrepreneurship education have been widely promoted as strategic tools for enhancing youth employability and fostering economic self-reliance. However, despite these interventions, youth unemployment in Nigeria continues to rise. A major factor contributing to this persistent problem is the inadequacy of digital skills among graduates of these programmes. While vocational education equips learners with technical competencies and entrepreneurship education emphasizes business creation, both often lack sufficient integration of digital technologies required for success in a modern, digitally driven economy.

Consequently, many graduates are unable to secure employment or effectively establish and sustain businesses in environments where digital competence is increasingly essential. This situation is further exacerbated by challenges such as inadequate ICT infrastructure, limited access to digital tools, and insufficient instructor competence in digital pedagogy.

The result is a persistent mismatch between the skills acquired through educational programmes and the demands of the contemporary labour market, thereby limiting the effectiveness of vocational and entrepreneurship education in addressing youth unemployment and promoting economic development. Although digital skills have been widely recognized as critical for improving employability, concerns remain regarding their level of integration and effectiveness within existing educational frameworks.

Therefore, this study seeks to examine the role of digital skills in enhancing the employability of graduates of vocational and entrepreneurship education programmes in Nigeria.

Research Questions

1. What is the level of digital skills acquisition among students in vocational and entrepreneurship education programmes?
2. What is the influence of digital skills acquired through vocational and entrepreneurship education on youth employability?
3. What challenges affect the acquisition of digital skills in vocational and entrepreneurship education?
4. What strategies can enhance the integration and acquisition of digital skills in vocational and entrepreneurship education programmes?

Objectives of the Study

The study aims to:

1. Examine the level of digital skills acquisition among students in vocational and entrepreneurship education programmes.
2. Determine the influence of digital skills acquired through vocational and entrepreneurship education on youth employability.
3. Identify challenges affecting the acquisition of digital skills in vocational and entrepreneurship education.
4. Examine strategies for enhancing the integration and acquisition of digital skills in vocational and entrepreneurship education programmes.

Literature Review

Vocational and Entrepreneurship Education in the Digital Era

Vocational education and entrepreneurship education have long been recognized as critical instruments for manpower development, economic growth, and poverty reduction. Vocational education focuses on equipping learners with practical, occupation-specific competencies required for employment in various trades and industries, while entrepreneurship education emphasizes innovation, opportunity recognition, and enterprise creation (UNESCO, 2021; Neck & Greene, 2018).

In the context of the digital economy, the scope of both forms of education has expanded significantly. Traditional vocational skills such as tailoring, carpentry, and accounting are increasingly being complemented by digital tools, including computer-aided design, e-commerce platforms, and digital accounting software. Similarly, entrepreneurship education now extends beyond conventional business planning to include digital business models, online marketing strategies, and platform-based enterprises (Okolie et al., 2020).

Scholars argue that the convergence of vocational and entrepreneurship education with digital competencies enhances the relevance of education to labour market demands (Agu et al., 2022). This integration ensures that graduates are not only technically proficient but also capable of leveraging digital technologies to improve productivity, expand market reach, and create innovative business solutions.

Digital Skills as a Determinant of Employability

Digital skills have emerged as a fundamental component of employability in the 21st century. These skills encompass a broad spectrum of competencies, ranging from basic ICT literacy such as the use of computers and the internet to advanced capabilities like data analysis, digital content creation, and online collaboration (van Laar et al., 2020). The increasing digitization of workplaces has made digital competence a prerequisite for employment across virtually all sectors. According to the Organisation for Economic Co-operation and Development (2021), individuals with higher levels of digital proficiency are more likely to secure employment, adapt to technological changes, and achieve higher productivity levels. Similarly, the World Bank (2020) emphasizes that digital skills are essential for participation in the global digital economy, particularly in developing countries where access to traditional employment opportunities may be limited.

Empirical studies further demonstrate that digital skills significantly influence employability outcomes by enhancing job search capabilities, enabling remote work, and supporting self-employment through digital entrepreneurship (van Laar et al., 2020). In this regard, digital competence is not merely an added advantage but a critical requirement for sustainable employment.

Integration of Digital Skills in Vocational and Entrepreneurship Education

The integration of digital skills into vocational and entrepreneurship education involves embedding digital technologies into curriculum content, teaching methods, and assessment practices. This integration enables learners to acquire both domain-specific skills and digital competencies simultaneously. Effective integration requires a comprehensive approach that

includes curriculum redesign, provision of ICT infrastructure, and capacity building for instructors. According to Agu et al., (2022), many institutions in developing countries face significant challenges in achieving this integration due to inadequate funding, poor technological infrastructure, and limited digital literacy among educators.

Furthermore, the lack of industry collaboration often results in curricula that do not reflect current technological trends and labour market requirements. This disconnect contributes to the persistent skills gap between graduates and employer expectations. Therefore, strengthening the integration of digital skills in vocational and entrepreneurship education is essential for enhancing the employability of graduates.

Challenges of Digital Skill Acquisition

Despite the recognized importance of digital skills, several challenges hinder their effective acquisition in vocational and entrepreneurship education. These challenges include inadequate access to ICT facilities, unreliable internet connectivity, insufficient training of instructors, and limited institutional support (Agu et al., 2022). In addition, socio-economic factors such as poverty and unequal access to technology further exacerbate the digital divide, limiting the ability of students to develop digital competencies. Addressing these challenges requires coordinated efforts from governments, educational institutions, and private sector stakeholders.

Theoretical Framework

This study is anchored on the Human Capital Theory as propounded by Gary Becker (1993). The theory posits that investment in education, training, and skill acquisition enhances the productive capacity of individuals, thereby increasing their employability and earning potential. Human Capital Theory emphasizes that skills and knowledge are forms of capital that yield economic returns over time. Within the context of this study, digital skills represent a critical form of human capital in the modern economy. As workplaces become increasingly digitized, individuals who possess digital competencies are better positioned to secure employment, adapt to technological changes, and contribute to economic productivity.

The theory further suggests that the integration of digital skills into vocational and entrepreneurship education constitutes a strategic investment in human capital development. By equipping students with both technical and digital competencies, educational institutions can enhance the employability of graduates and support national economic development. Moreover, the theory provides a useful framework for understanding the relationship between education, skills acquisition, and labour market outcomes. It underscores the importance of aligning educational programmes with labour market demands, particularly in the context of rapid technological change.

Materials and Method

The study adopted a descriptive survey research design to investigate the role of digital skills in enhancing youth employability through vocational and entrepreneurship education. The population comprised students and instructors in selected tertiary institutions offering vocational and entrepreneurship education programmes in Ogun state. A sample of 150 respondents was selected using simple random sampling technique.

Data were collected using a structured questionnaire designed on a Likert scale. The instrument was validated by experts in the field of vocational and entrepreneurship education, and its reliability was established using Cronbach's Alpha, yielding a coefficient of 0.78. Data collected were analysed using mean and standard deviation to answer the research questions.

Results and Discussion

Table 1: Level of Digital Skills Acquisition

Item	Mean	SD	Decision
Ability to use computer systems	3.20	0.75	High
Internet navigation skills	3.10	0.80	High
Digital marketing skills	2.95	0.85	Moderate
Use of productivity tools	3.05	0.70	High
Grand Mean	3.08	0.78	High

Source: Researcher's field work 2026

Table 1 shows that respondents possess a generally high level of digital skills acquisition with a grand mean of 3.08. This indicates that students in vocational and entrepreneurship education programme have a satisfactory level of competence in basic computer use, internet navigation, and productivity tools. However, digital marketing skills recorded a moderate mean, suggesting that this area requires improvement.

Table 2: Influence of Digital Skills Acquisition on Youth Employability

Item	Mean	SD	Decision
Digital skills improve employability opportunities	3.25	0.78	High
ICT competence increases job competitiveness	3.30	0.72	High
Employers prefer candidates with digital skill	3.15	0.80	High
Digital skills enhance self-employment opportunities	3.20	0.76	High
Digital literacy improves job performance	3.18	0.74	High
Grand Mean	3.22	0.76	High

Source: Researcher's field work 2026

Table 2 reveals that digital skills have a high positive influence on youth employability, as reflected in the grand mean of 3.22. Respondents agreed that digital competencies enhance job competitiveness, improve employment opportunities, and support self-employment. This suggests that digital skills are critical determinants of employability in the modern labour market.

Table 3: Challenges Affecting Acquisition of Digital Skills

Item	Mean	SD	Decision
Inadequate ICT infrastructure limits digital learning	3.35	0.70	High
Lack of access to computers and internet	3.40	0.68	High
Insufficient ICT-trained instructors	3.28	0.75	High
Outdated curriculum affects digital skill development	3.22	0.77	High
Poor funding of ICT resources	3.30	0.73	High
Grand Mean	3.31	0.73	High

Source: Researcher's field work 2026

Table 3 shows that respondents identified several significant challenges affecting digital skills acquisition, with a grand mean of 3.31. This indicates a high level of agreement that inadequate infrastructure, lack of ICT access, insufficiently trained instructors, outdated curriculum, and poor funding are major constraints limiting effective digital skills development in vocational and entrepreneurship education programmes.

Table 4: Strategies for Enhancing Digital Skills Acquisition in Vocational and Entrepreneurship Education

Item	Mean	SD	Decision
Integration of ICT into vocational and entrepreneurship curriculum enhances skills acquisition	3.42	0.71	High
Regular ICT training for instructors improves teaching effectiveness	3.38	0.74	High
Provision of adequate ICT infrastructure supports digital learning	3.45	0.69	High
Provision of adequate ICT infrastructure supports digital learning	3.30	0.76	High
Use of e-learning platforms enhances digital competence	3.36	0.72	High
Grand Mean	3.38	0.72	High

Source: Researcher's field work 2026

Table 4 reveals that respondents strongly agreed on the strategies required to enhance digital skills acquisition in vocational and entrepreneurship education, as indicated by the grand mean of 3.38. This suggests that the integration of ICT into the curriculum, provision of adequate ICT infrastructure, continuous training of instructors, collaboration with industry, and the use of e-learning platforms are all important strategies for improving digital

competence among students. The overall result indicates that effective implementation of these strategies can significantly strengthen digital skills acquisition and improve youth employability outcomes.

Discussion of Findings

The findings of this study reveal that while students possess a relatively high level of basic digital skills, there are noticeable gaps in more advanced competencies such as digital marketing. This aligns with existing literature which suggests that vocational education often emphasizes foundational skills while neglecting emerging digital competencies. The study further established that digital skills significantly enhance youth employability. This supports the view that digital competence is a key requirement in the contemporary labour market, where employers increasingly prioritize technologically skilled individuals.

However, the findings also identified several barriers to effective digital skills acquisition, including infrastructural deficits and inadequate instructional capacity. These challenges are consistent with previous studies in developing countries, which highlight systemic limitations in educational delivery.

Finally, the study identified practical strategies for improving digital skills acquisition. These findings suggest that strengthening curriculum integration, improving ICT infrastructure, and enhancing teacher capacity are critical steps toward bridging the skills gap and improving employability outcomes.

Conclusion and Recommendation

The study examined the role of digital skills in enhancing youth employability within the framework of vocational and entrepreneurship education, particularly within the realities of an increasingly digitalized global economy. The findings revealed that students possess a relatively high level of foundational digital skills, especially in basic computer operations, internet usage, and productivity tools. However, notable gaps persist in more advanced competencies such as digital marketing, which are crucial for entrepreneurial success and competitiveness in the modern labour market. The study further established that digital skills significantly enhance employability by improving job readiness, increasing competitiveness, and supporting self-employment opportunities.

Despite these positive outcomes, several challenges were identified as constraints to effective digital skills acquisition. These include inadequate ICT infrastructure, limited access to digital resources, insufficient instructor competence, and outdated curricula, all of which hinder the full realization of the benefits of vocational and entrepreneurship education. In view of these findings, it is imperative that educational authorities and stakeholders adopt a more comprehensive and strategic approach to skill development. This should involve the full integration of digital competencies into vocational and entrepreneurship curricula, alongside the provision of adequate ICT facilities such as computers, reliable internet access, and modern digital learning tools.

Furthermore, there is a need for continuous capacity building for instructors through professional development programmes to enhance their digital proficiency and improve instructional delivery. Institutions should also ensure improved access to digital platforms, software, and online tools that support practical learning. Strengthening collaboration

between educational institutions and industry is equally essential to expose students to real-world digital applications and emerging technologies. In addition, the promotion and effective implementation of e-learning and blended learning approaches will further support flexible, technology-driven education. Collectively, these measures will equip youths with the relevant technical, entrepreneurial, and digital competencies required to thrive in a technology-driven economy and contribute to sustainable economic development.

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MEDIATING ROLE OF EMPLOYEE EMOTIONAL EXHAUSTION ON THE RELATIONSHIP BETWEEN WORK FAMILY CONFLICT AND COUNTERPRODUCTIVE WORK BEHAVIOUR IN NIGERIA

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Abstract

This study explored the mediating role of emotional exhaustion on the relationship between work-family conflict and counterproductive work behaviors among workers in the Nigerian banking industry. A cross-sectional survey design was used, and data were gathered from 236 workers of commercial banks using a convenience sampling method. The results indicated that work-family conflict and emotional exhaustion had a strong favourable influence on counterproductive work behaviour. Additionally emotional exhaustion serving as a partial mediator in the interaction between work-family conflict and counterproductive work behaviour. The findings indicate that individuals struggling to balance work and family obligations experience emotional exhaustion, hence increasing their propensity for unfavourable workplace behaviours. Organisations should adopt family-friendly policies, such as flexible work schedules, remote work options, and childcare support, to lessen conflict between employees' work and family roles, as research shows that work-family conflict has a strong positive effect on counterproductive work behaviour.

Keywords: Conservation of Resources (COR) Theory, Counterproductive work behaviour, Emotional exhaustion, **JEL Codes:** M30, M31, M37, Work-family conflict.

Introduction

In the contemporary competitive business environment, sustaining high levels of profitability and productivity is imperative for organizational success. This objective is predominantly contingent upon the cultivation of a positive work environment that facilitates employee thriving. Nevertheless, counterproductive work behaviour (CWB) persists as a pervasive challenge, detrimentally affecting both organizational performance and employee well-being (Duradoni, 2023). This issue is especially pronounced in high-pressure industries such as banking, where factors including intense competition, increasing complexity, and excessive workloads frequently strain employees to their capacity (Ranjan, 2025).

In pursuit of maintaining a competitive advantage within global markets, organizations have historically adopted a mechanistic view of employees, often neglecting their individual human qualities. It is precisely this individuality, however, that when effectively nurtured, serves as the fundamental catalyst for unlocking human potential and, consequently, driving sustained organizational achievement (Petitta & Ghezzi, 2025).

The Nigerian banking sector has recently implemented extensive reforms, fostering a highly structured corporate environment that demands strict adherence to rules and high-performance standards from its employees (Echezona-Anigbogu, 2024). These standards, encompassing punctuality, dress codes, behavioural conduct, and the achievement of set targets, are enshrined in banking policy.

Consequently, prospective employees are expected to possess the requisite personal attributes to comply with these demands. While these reforms have positively transformed the industry, they have also escalated job demands related to the availability and quality of service delivery from both customers and regulators (Mbanefo et al., 2019). These increased pressures carry significant implications for the social and psychological well-being of bank workers (Aguwa et al., 2014). As noted by Amazue and Onyishi (2016), pressures stemming from tight deadlines and unrealistic performance targets can adversely affect employees' psychological health, potentially leading to counterproductive work behavior.

Counterproductive work behaviour (CWB) is garnering increased scholarly and managerial attention, largely in response to business scandals that pose significant risks to organizational integrity and performance (Shafkat et al., 2023). Shafkat et al. (2023) define these behaviours as actions undertaken by employees for the benefit of their immediate family or specific family members. Such deviant conduct is a pervasive issue across organizations and can incur substantial financial and operational costs. Empirical evidence underscores its prevalence; a survey conducted by the Yale Center for Emotional Intelligence and the FAAS Foundation (Zorana Ivcevic, 2020) found that in U.S. organizations, 29% of workers admitted to violating rules, 27% to lying, 27% to engaging in harmful work practices, 3% to stealing, and 2% to bullying. The economic impact is potentially even more severe in developing nations like Nigeria, where, as Ugwu et al. (2022) asserted, the costs stemming from workplace deviance may be both substantial and difficult to quantify due to a lack of comprehensive data.

Work-family conflict (WFC) is defined as a form of inter-role conflict that arises when the pressures from work and family domains are mutually incompatible (Duffy et al., 2023). This incompatibility, fuelled by finite resources such as time and energy, makes balancing the demands of both roles a significant challenge. Grounded in inter-role conflict perspective, WFC is conceptualized as bidirectional, comprising work-to-family conflict (WTFC) and family-to-work conflict (FTWC) (Yan et al., 2025). WTFC manifests when pressures from the work domain intrude upon and impede family responsibilities, whereas FTWC occurs when familial obligations interfere with work-related roles (Soomro et al., 2018). As a relatively recent societal challenge, literature indicates that WFC, particularly when work responsibilities obstruct family demands, can generate negative outcomes such as counterproductive work behaviour (CPWB) (Shafkat et al., 2023). Empirical studies have consistently found that the simultaneous management of professional and domestic demands is profoundly challenging for individuals, and this role incompatibility is a primary antecedent of WFC (Akkas et al., 2015).

While the literature on employee behavior has historically been dominated by investigations into positive organizational behaviors, significantly less scholarly attention has been devoted to understanding negative workplace attitudes and behaviors, particularly job dissatisfaction and counterproductive work behavior (CWB) (Yean et al., 2022). As Liu et al. (2020) indicate, CWB remains a relatively nascent construct with limited research contributions. Given the persistent lack of a comprehensive understanding of its underlying predictors, further empirical investigation is necessary. Such research is critical to provide deeper insights into the motivational antecedents of CWB, thereby enabling organizational stakeholders to develop targeted strategies for its mitigation and management (Chinwuba, 2023).

This study seeks to elucidate the relationship between work-family conflict (WFC) and counterproductive work behaviour (CWB). Previous research has established WFC as a significant stressor (Ding, 2021). The Conservation of Resources (COR) theory provides a robust theoretical framework for explaining the etiology and consequences of stress across various contexts (Zhang et al., 2021). According to COR theory, the experience of stress can precipitate negative employee emotions and lead to emotional exhaustion (Rabiul et al., 2024). In an effort to conserve or recoup lost resources, individuals may subsequently engage in negative behaviours (Hobfoll et al., 2018). As CWB is a recognized manifestation of such negative emotional outcomes (Aitken et al., 2025), COR theory offers a valuable lens through which to understand the mechanistic pathway linking a specific stressor like WFC to a negative behavioural outcome such as CWB.

Furthermore, Conservation of Resources (COR) theory posits that an initial loss of resources can instigate a loss spiral, wherein subsequent resource depletions occur, thereby amplifying the adverse effects of the primary loss (Rubaca & Munir, 2025). Consequently, as a significant source of strain, work-family conflict is theorized to initiate such a deleterious cascade, progressively exacerbating resource depletion and ultimately culminating in detrimental behavioural outcomes such as counterproductive work behaviour (CWB). It is therefore proposed that a mediating mechanism, conceptualized as this chain reaction of resource loss, operates within the relationship between work-family conflict and CWB. In summary, COR theory provides a particularly apt theoretical foundation for the present research model due to its explicit focus on the dynamics of resource loss and its resultant sequelae.

Literature Review and Theoretical Framework

This section reviews related literature on counterproductive work behaviour, work-family conflict, emotional exhaustion, empirical review and conservation of resource theory.

Concept of Counterproductive Work Behaviour

Counterproductive work behavior (CWB), as conceptualized by Hollinger and Clark (1983), is defined as voluntary behavior that violates significant organizational norms and, in doing so, threatens the well-being of the organization or its members. This concept was also defined by Sabir et al. (2024) and Ahmed et al., (2025) describe as deliberate actions by employees intended to harm the organization, its internal members, or its legitimate interests. These intentional acts violate established norms and standards, thereby posing a significant threat to organizational functioning and member safety.

In essence, CWB constitutes a range of detrimental actions that breach organizational norms (Chinwuba, 2023). The repercussions of such behavior are extensive, negatively impacting a wide array of stakeholders, including colleagues, customers, and the broader organization by reducing efficiency, impairing job performance, and threatening overall well-being (Fan et al., 2023; Chinwuba, 2023). It is important to distinguish these voluntary, intentional acts from involuntary deviance, which may stem from an employee's lack of ability to conform (Tu et al., 2022). Synthesizing these perspectives, this study defines counterproductive work behavior (CWB) as deliberate actions or behaviors enacted by employees that are intended to, or have the clear potential to, harm the organization, its members, or the achievement of its goals.

Concept of Work-Family Conflict

Work-family conflict (WFC) is a form of inter-role conflict arising from the incompatibility between the pressures and demands of an individual's professional and personal life domains (Bajaba et al., 2022; Ahsan et al., 2025; Yarifard et al., 2023). This conflict is bidirectional: work can interfere with family (WIF), and family can interfere with work (FIW) (Handelzalts et al., 2024; Lange & Kayser, 2022). The core of this conflict lies in the competition for finite personal resources, where participation in one role complicates effective participation in the other due to conflicting responsibilities, needs, and commitments (Nurcholidah et al., 2023). Yarifard et al. (2023) further delineate WFC into three components: time-based conflict, which occurs when time devoted to one role reduces the time available for the other; strain-based conflict, where psychological strain or energy expended in one role depletes the resources available for the other; and behavior-based conflict, in which specific patterns of behavior effective in one domain are incompatible with the expectations of the other. Synthesizing these perspectives, this study conceptualizes work-family conflict as the psychological stress and tension that emerges from the perceived incompatibility between work and family demands, making their successful reconciliation difficult.

Concept of Emotional Exhaustion

Emotional exhaustion is widely acknowledged as the core dimension of burnout (Halbesleben & Bowler, 2007). Initially conceptualized by Maslach (2003) as a fundamental component of the burnout syndrome, it is defined as a chronic state of feeling emotionally overextended and depleted of one's emotional and physical resources (Nápoles, 2022). This condition results from prolonged exposure to chronic work-related stress and is characterized by profound physical and psychological fatigue (Hernández et al., 2024).

Beyond being a mere outcome of stress, emotional exhaustion represents a significant depletion of an individual's resources, creating a pervasive sense that these valuable assets are threatened or diminishing (Sakr et al., 2025; Chaves-Montero et al., 2025). It functions not only as a final symptom but also as an ongoing psychological demand that itself requires effort and further drains energy (Lee et al., 2024). As a cognitive-affective response to persistent occupational strain, emotional exhaustion has detrimental repercussions, including reduced individual productivity and declines in overall organizational performance (Figueiredo et al., 2024).

Synthesizing these perspectives, this study defines emotional exhaustion as a state of profound psychological and physical depletion arising from prolonged exposure to stress, typically stemming from excessive work or care-giving demands.

Work-Family Conflict and Counterproductive Work Behaviour

Research indicates that work-family conflict (WFC) generates significant negative consequences in organizational settings, particularly by fostering counterproductive work behaviours (CWBs) that harm both institutions and their members (Selvarajan et al., 2019). Despite its demonstrated effects, the specific relationship between WFC and CWBs remains understudied. Liu et al. (2020), identify counterproductive work behaviour (CWB) a particularly costly subset of CWBs for organizations - as a direct outcome of WFC. This manifests when employees violate organizational rules or social norms to benefit their families, representing a distinct form of workplace deviance.

The organizational costs of such behaviours are substantial. The ACFE Report to the Nations (2014) found that 33% of counterproductive workplace incidents stem from employee financial pressures, suggesting WFC may create similar strain-based pathways to CWBs. Empirical evidence across sectors supports this connection: Ahsan et al. (2025), established the WFC-workplace deviance link in Pakistan's education sector, while Chen et al. (2020), observed the same pattern among construction professionals. The relationship holds in financial services as well, with Dartey-Baah (2022) documenting WFC's significant impact on CWB among Ghanaian bank employees, and Shah et al. (2023), demonstrating how WFC exacerbates workplace deviant behaviour (WDB) in service sector workers.

These consistent findings across diverse industries and cultural contexts suggest WFC represents a robust predictor of counterproductive workplace conduct. The replication of this relationship in multiple studies underscores the need for organizations to address work-family conflict as both a human resources concern and a threat to organizational integrity. Future research should explore mediating mechanisms and potential interventions to break this destructive cycle. Hence, this study hypothesized that:

H_{1a}: Emotional exhaustion has significant effect on CWB among selected banks in Nigeria.

Emotional Exhaustion and Counterproductive Work Behaviour

Extensive research demonstrates that emotionally exhausted employees are prone to attitudes and behaviours that undermine both performance and ethical conduct (Lee et al., 2024). Such exhaustion not only fuels absenteeism and turnover intentions (Lee et al., 2021) both classified as counterproductive work behaviours (CWB) but also erodes psychological well-being, exacerbating negative workplace actions (Sahibzada et al., 2025). This establishes a clear connection between emotional exhaustion (EE) and CWB, mediated by the depletion of mental and emotional resources.

Drawing on the Conservation of Resources (COR) theory (Macey, 2008), emotionally exhausted employees lack the reserves needed to manage stress effectively, impairing their self-regulation and increasing susceptibility to CWB. This aligns with Marcatto et al., (2025) proposition that CWB may emerge as a maladaptive coping mechanism in response to resource depletion. Empirical evidence supports this: Khan and Siddiqui (2023), found EE directly amplifies CWB among corporate employees in Pakistan, while Goga et al., (2023), used PLS-SEM to revealed a significant positive relationship between EE and workplace deviance, particularly aggressive CWB among academic staff. These findings corroborate COR theory's premise that resource loss triggers defensive, even aggressive, behaviours as individuals strive to protect their remaining resources.

In sum, emotional exhaustion acts as a critical pathway to CWB, driven by eroded self-regulation and coping capacity. Organizations aiming to mitigate CWB must address EE's root causes whether through workload management, supportive leadership, or restorative practices to preserve employee resources and foster productive behaviour. Thus, this study hypothesized that:

H_{1b}: Emotional exhaustion has significant effect on CWB among selected banks in Nigeria.

Emotional Exhaustion as a Mediator

Emotional exhaustion (EE) has emerged as a critical mediating factor in various workplace relationships, particularly in contexts marked by stress, toxicity, and poor leadership. Research by Sakr et al., (2025) highlights its role in explaining how toxic work environments impede job productivity, serving as a key pathway through which adverse conditions translate into performance deficits. Similarly, Omotoye et al., (2024) demonstrate that emotional exhaustion mediates the effects of workplace incivility on adaptive performance among nurses, while also partially explaining the interplay between job demands, supervisor support, and work-family conflict (WFC).

The mediating influence of emotional exhaustion extends to leadership and behavioural outcomes. Rubaca and Munir (2025) found that supervisor incivility predicts job neglect among nurses, with emotional exhaustion acting as a partial mediator. Likewise, Sahibzada et al. (2025) reveal its role in linking exploitative leadership to diminished green innovative behaviour in healthcare employees, suggesting that resource depletion stifles proactive contributions. Supporting this, Khanam and Tarab (2025) apply the Conservation of Resources (COR) theory to examine whether emotional exhaustion bridges customer incivility and reduced job performance, reinforcing the idea that sustained stressors erode employees' capacity to function effectively.

Beyond interpersonal mistreatment, emotional exhaustion also mediates systemic and occupational stressors. Chen et al. (2025) show that teacher competency indirectly impacts work engagement through occupational stress and emotional exhaustion, underscoring its dual role as both an outcome and a conduit for broader organizational dynamics. Finally, Madan et al. (2025) tie these threads together, demonstrating how supervisor incivility triggers aggression and emotional exhaustion, which in turn fuel workplace deviance further evidence of EE's centrality in the stressor-strain-performance chain.

Collectively, these studies position emotional exhaustion as a pervasive mediator, translating adverse workplace conditions whether toxic environments, incivility, exploitative leadership, or excessive demands into tangible declines in productivity, engagement, and adaptive behaviour. Grounded in COR theory, this body of work emphasizes the depletion of psychological resources as a unifying mechanism, urging organizations to address emotional exhaustion as a linchpin in safeguarding employee well-being and performance. In summary, employee EE is a mechanism linking work-family conflict to CWB:

H₂: Emotional exhaustion mediates the relationship between work-family conflict and CWB among selected banks in Nigeria.

Conservation of Resources Theory

Conservation of Resources (COR) theory elucidates the etiology of stress and subsequent individual behaviors by emphasizing the dynamics of resource acquisition, retention, and

loss. The theory posits that individuals are motivated to obtain, retain, and foster things they value, which are defined as resources (Hobfoll, 1989). Stress emerges when individuals perceive that their valued resources are (1) threatened with loss, (2) actually lost, or (3) when invested resources fail to yield anticipated returns. To mitigate this pressure, individuals engage in behaviors aimed at conserving their remaining resources and preventing further depletion (Hobfoll et al., 2018). Encompassing a series of interrelated principles, COR theory provides a comprehensive framework for understanding the causes and impacts of behavior. A key tenet is that initial resource loss can trigger a defensive mode, heightening an individual's vulnerability to aggression and reducing self-regulatory capacity (Zhang et al., 2021). Furthermore, COR theory proposes that resource loss makes individuals more susceptible to subsequent losses, creating a detrimental loss spiral (Hobfoll et al., 2018).

In the context of work-family conflict, which depletes psychological resources, employees may experience emotional exhaustion. This depleted state leaves insufficient resources to regulate behavior normatively, thereby increasing the propensity for counterproductive work behavior (CWB) as a defensive or retaliatory act (Lim & Leo, 2024). Consequently, COR theory offers a robust theoretical lens for examining the mechanistic pathway linking a workplace stressor such as work-family conflict to negative behavioral outcomes like CWB.

According to Conservation of Resources (COR) theory, emotional exhaustion (EE) is a salient manifestation of resource depletion. This state of exhaustion not only signifies a significant loss of resources but also accelerates further depletion, thereby increasing the propensity for subsequent negative behaviours such as counterproductive work behaviour (CWB). Empirical evidence supports this, indicating that EE exerts a positive influence on CWB (Huang et al., 2017). Grounded in this theoretical framework, the present study therefore posits that heightened work-family conflict precipitates emotional exhaustion among employees, which subsequently mediates its relationship with CWB.

Materials and Methods

A cross-sectional survey research approach was used in the study, allowing data to be collected at one moment in time to analyse the connection between the variables under investigation. Using a convenience sampling approach, questionnaires were sent to commercial bank employees who were available and willing to take part. The instrument was administered using a Google online questionnaire, which allowed respondents to complete it at their leisure and allowed for simple access and wide coverage. The replies were actively gathered by the researchers over a six-week period, and 236 valid questionnaires were ultimately collected and used for further statistical analysis. The used approach made certain that adequate data was acquired to provide significant understanding of the study's goals.

Measures

Validated instrument from previous studies were adapted and used in this study. Maslach and Jackson (1981) 8-item scale to measure emotional exhaustion was adopted. Cronbach's alpha for this measure was 0.97. A sample of the items for the instrument used for measurement was "I feel emotionally drained from my work". with reported Cronbach's alpha of 0.89. Second, work-family conflict was measured using 5-item scale of Haslam et al. (2014). Sample of item is "My work prevents me spending sufficient quality time with my family" with reported Cronbach's alpha of 0.75. Lastly, counterproductive work behaviour was measured utilising 8-item Zahid (2019) scale. Sample of item is "Misused personal position

to favor someone for own benefit” with reported Cronbach’s alpha of 0.83. Consequently, since the alpha coefficients of the constructs are greater than the 0.70 threshold, it shows that the instruments are consistent and appropriate for the study. Meanwhile, all items were measured using a five-point Likert scale ranging from 1 “strongly disagree” to 5 “strongly agree.”

Results and Discussion

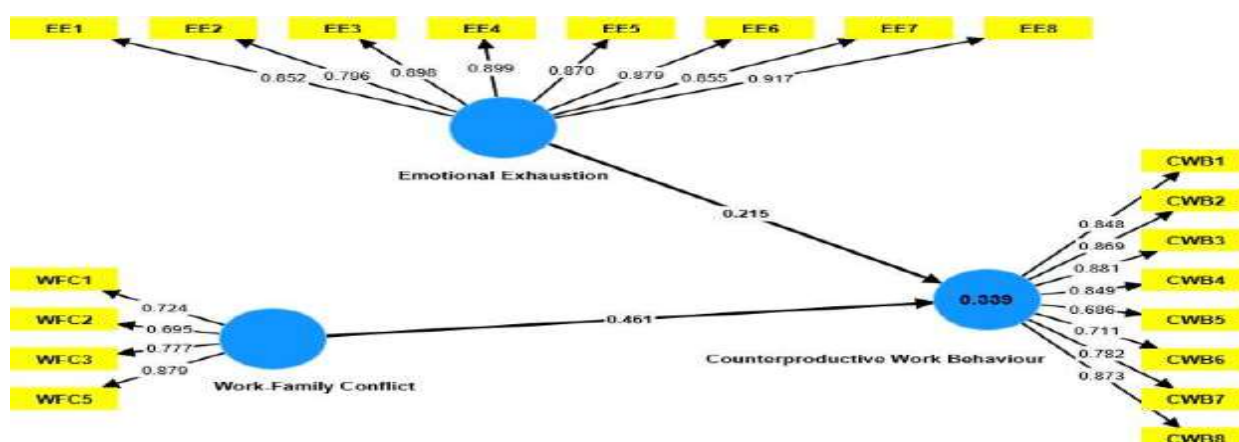
Data were analysed using Structural Equation Modelling (SEM) particularly Smart-PLS 4.0.9.9 to analyse the measurement and structural model.

Assessment of Measurement Model

The measurement model is often utilised to evaluate the outer loadings, validity and reliability of the constructs. First, the outer loading was assessed. Hair et al. (2022), recommended the retentions of loading ≥ 0.70 and deletion of loadings below this threshold. However, Hair et al. (2022), noted that loading of ≥ 0.4 may be retained considering the influence of such action on the convergent validity and reliability of the said construct. Meanwhile, Hulland (1999), recommended the retention of loadings ≥ 0.5 owing to the practicability of getting loading of ≥ 0.7 in practice. As such, owing to these recommendations’ loadings ≥ 0.5 were retained while considering the effect of the action of the convergent validity and reliability of the constructs. Outer loading WFC4 was deleted owing to loading below 0.5 benchmark. Additionally, convergent validity was ascertained using Average Variance Extracted (AVE). Hair et al. (2022), recommended that to established the convergent validity, the values of AVE should not be < 0.5 . In Table 1 below, the value of AVE for each of the construct is > 0.5 threshold. Hence, convergent validity is established. Furthermore, the reliability of the constructs was tested using Cronbach’s alpha and composite reliability. Sekaran and Bougie (2016), posited that for an instrument to be deemed reliable, the Cronbach’s alpha and composite reliability coefficients must be ≥ 0.70 threshold. Table 1 below revealed that the Cronbach’s alpha and composite reliability are greater than this threshold. Thus, the research instruments are appropriate and consistent for the study.

Measurement Model

Figure no. 1 Pictorial display of Measurement Model



Source: Authors’ Systemisation of Smart-pls output, 2026

Table 1: Outer Loadings, Reliability and Convergent Validity

Constructs	Items	Loadings	Cronbach's Alpha	Composite Reliability	AVE	Decision
Counterproductive Behaviour	Work					
	CWB1	0.848	0.928	0.940	0.665	Accepted
	CWB2	0.869				
	CWB3	0.881				
	CWB4	0.849				
	CWB5	0.686				
	CWB6	0.711				
	CWB7	0.782				
	CWB8	0.873				
Emotional Exhaustion	EE1	0.852	0.921	0.937	0.759	Accepted
	EE2	0.796				
	EE3	0.898				
	EE4	0.899				
	EE5	0.870				
	EE6	0.879				
	EE7	0.855				
	EE8	0.917				
Work-Family Conflict	WFC1	0.724	0.773	0.854	0.596	Accepted
	WFC2	0.695				
	WFC3	0.777				
	WFC5	0.879				

Source: Authors Systemization of Smart-PLS output, 2026

The discriminant validity of the study was measured using Heterotrait-Monotrait (HTMT) correlation ratio as suggested by Kline (2011) and Henseler et al. (2015) owing to its ability to predict lack of discriminant validity especially when the loadings are between 0.65 to 0.85. Hence, Kline (2011) suggested that to establish discriminant validity for conceptually different constructs, the threshold should < 0.85 while Henseler et al. (2015) advocated for < 0.90 for conceptually similar constructs. Therefore, since the constructs of the study are conceptually dissimilar, Kline (2011)'s benchmark was employed. Table 2 below showed that all the values were < 0.85 . Hence, discriminant validity is established.

Table 2: Heterotrait-Monotrait (HTMT) Ratio of Correlations Discriminant Validity

Constructs	Counterproductive Behaviour	Work	Emotional Exhaustion	Work-Family Conflict
Counterproductive Behaviour				
Emotional Exhaustion	0.405			
Work-Family Conflict	0.602		0.459	

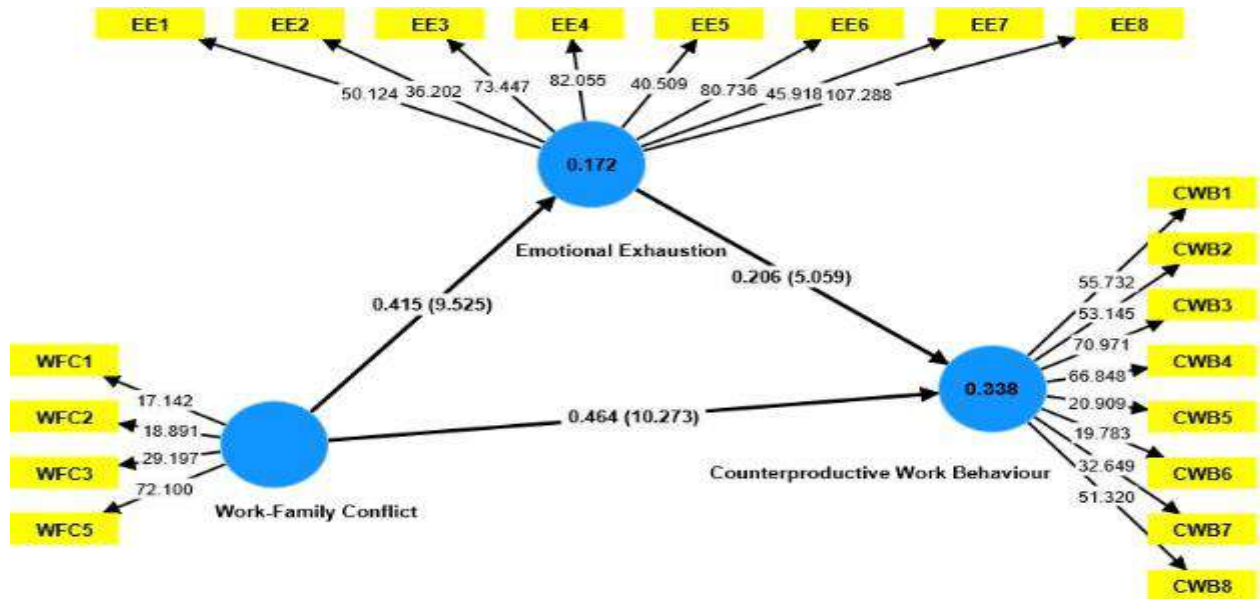
Source: Authors Systemisation of Smart-PLS output, 2026

Assessment of Structural Model

The structural model was employed to analyse the hypothesized relationship using bootstrapping 5000.

Structural Model

Figure no. 2 Pictorial display of Structural Model



Source: Authors Systemisation of Smart-pls output, 2026

Table 4: Hypothesized Relationship

Hypotheses	Relationship	Beta	STDEV	T Statistics	P Values	Confidence Interval		Decision
						2.50%	97.50%	
H_{1a}	Emotional Exhaustion -> Counterproductive Work Behaviour	0.206	0.041	5.059	0.000			Supported
H_{1b}	Work-Family Conflict -> Counterproductive Work Behaviour	0.464	0.045	10.273	0.000			Supported
H_2	Work-Family Conflict -> Emotional Exhaustion -> Counterproductive Work Behaviour	0.085	0.020	4.229	0.000	0.050	0.130	Supported
		$Q^2 = 0.208$						

The alternate hypotheses are supported since the structural model's findings show that every connection that was hypothesised was significant. According to H_{1a} , counterproductive work behaviour is positively and significantly impacted by emotional exhaustion ($\beta = 0.206$, $t = 5.059$, $p = 0.001$), indicating that greater emotional exhaustion levels increase the probability that workers would engage in counterproductive work behaviour. Work-family conflict also has a stronger positive impact on counterproductive work behaviour ($\beta = 0.464$, $t = 10.273$, $p < 0.001$), according to H_{1b} , which shows that employees who have a harder time juggling their work and family obligations are more likely to engage in counterproductive behaviours. According to the mediation analysis, emotional exhaustion partially mediates the relationship between work-family conflict and counterproductive work behaviour for H_2 ($\beta = 0.085$, $t =$

4.229, $p < 0.001$; CI: 0.050–0.130). This suggests that work-family conflict influences counterproductive behaviour both directly and indirectly through increased emotional exhaustion.

A Q^2 result of 0.208 further illustrates the model's predictive significance. According to Cohen's (1988) recommendations, minor, medium, and high predictive significance are represented by Q^2 values of 0.02, 0.15, and 0.35, respectively. Consequently, the model's Q^2 value of 0.208 indicates that it has a medium level of predictive relevance, indicating that the exogenous variables—work-family conflict and emotional exhaustion offer a significant and moderate predictive ability for workers' counterproductive work behaviour.

Discussion

Employees who struggle to manage the demands of their job and family obligations are more likely to act out at work, according to the research, which demonstrates that work-family conflict has a positive and substantial effect on counterproductive work behaviour. This is consistent with previous study of e.g., Shah et al., 2023; Chen et al., 2020; Ahsan et al., 2025 & Selvarajan et al., 2019. Stress, frustration, and emotional strain are often increased by such disagreement, which may impair workers' capacity to concentrate effectively and instead lead them to behave in ways that intentionally contradict organisational objectives, such as withdrawing, showing a lack of commitment, or engaging in other activities (Shah et al., 2023). This result emphasises how important it is to have a good balance between work and family life since unresolved conflicts in this area lead to actions that impair overall organisational performance in addition to harming workers' well-being. Organisations may mitigate this issue by implementing work-family rules, flexible work schedules, and encouraging work cultures that lessen the strain of work-family conflict and, therefore, minimise counterproductive inclinations (Ahsan et al., 2025).

Employees who experience emotional exhaustion are more likely to behave in ways that adversely affect their organisations, according to the research, which also shows that emotional exhaustion has a positive and substantial influence on unproductive work conduct. The finding is in tandem with past studies of e.g., Goga et al., 2023; Khan & Siddiqui, 2023 & Marcatto et al., 2025. People's ability to exercise self-control and constructive engagement is compromised when they are overburdened by long-term stress or excessive job demands (Goga et al., 2023). As a result, they are more likely to act out of frustration by putting forth less effort, being late, withdrawing, or willfully breaking workplace rules (Marcatto et al., 2025). This study emphasises the negative effects of mismanaged emotional stress as it not only degrades worker wellbeing but also results in actions that lower organisational effectiveness. Organisations should give priority to stress management programs, encouraging leadership styles, and wellness activities that support workers' emotional recovery and help them sustain higher levels of engagement at work in order to lessen this impact.

Employees who struggle to balance work and family responsibilities are more likely to become emotionally exhausted, which in turn raises the likelihood of engaging in negative workplace behaviours. This finding suggests that emotional exhaustion mediates the relationship between work-family conflict and counterproductive work behaviour. This shows that work-family conflict affects counterproductive behaviours both directly and indirectly by increasing emotions of exhaustion, stress, and burnout. To put it another way, emotional exhaustion is the conduit through which the stress of competing expectations

manifests as negative behaviours at work. Because lowering work-family stressors and promoting workers' psychological well-being may greatly reduce the incidence of counterproductive actions inside organisations, this partial mediation emphasises the significance of addressing both work-family balance and emotional well-being.

Implications

Practically, the study emphasises how urgently companies must adopt procedures and policies that lessen work-family conflict and handle emotional exhaustion in order to stop unproductive work behaviours. Managers should support family-friendly policies like flexible work schedules, childcare support, and workload adjustments because workers who struggle with the demands of work and family roles are more likely to become emotionally exhausted and subsequently engage in negative workplace behaviours. Organisations may also spend money on health treatments, stress management programs, and employee support programs that help emotionally spent employees cope and develop resilience. Organisations may safeguard employee well-being, increase overall productivity, and save expenses related to unproductive conduct by cultivating a supportive work environment.

For Nigeria and similar developing nations, the findings of this study should be elevated from a human resource related issue to a strategic national dialogue. Addressing work-family conflict and emotional exhaustion is inextricably linked to broader goals of improving public health, retaining critical human capital, empowering women, and driving sustainable economic growth. Nigerian organizations that lead in this area will not only see improved productivity but will also position themselves as employers of choice, capable of weathering local challenges and competing in a globalized market for talent. The call to action is for a collaborative effort between the government, private sector and civil society to create ecosystems that support, rather than exhaust, the working individual.

The finding theoretically supports the Conservation of Resources (COR) Theory, which holds that people work to obtain, safeguard, and preserve important resources including time, energy, and emotional stability. Employees who experience work-family conflict are more susceptible to emotional exhaustion, which may lead to unproductive work behaviours as a coping mechanism or form of revenge for the loss of resources. By experimentally showing how resource depletion (emotional exhaustion) functions as a mediation mechanism between environmental stressors (work-family conflict) and behavioural results (counterproductive behaviour), the research adds to the COR framework. In addition to indicating that treatments targeted at resource replenishment may successfully lower negative workplace outcomes, this supports the theoretical claim that resource loss is a key factor in stress experiences and behavioural reactions.

Conclusion and Recommendations

The study found that emotional exhaustion partially mediates the association between work-family conflict and counterproductive work behaviour, and that both work-family conflict and emotional exhaustion are major predictors of unproductive work activity. The results highlight the fact that workers who are unable to manage the demands of both job and family experience emotional exhaustion, which raises the possibility that they would take actions that compromise the performance of the organisation. The research provides theoretical and practical insights by highlighting how resource depletion influences behavioural consequences via the use of the Conservation of Resources Theory. Overall, the research

highlights how important it is for businesses to implement treatments and supportive policies that manage emotional strain, lessen work-family conflicts, and create a healthy workplace that improves worker productivity and well-being.

Based on the findings, the following recommendations are advanced:

1. Organisations should give priority to stress management programs like wellness programs, counselling services, and supportive supervision in order to assist employees in recovering emotionally and sustaining healthy levels of engagement at work, as research indicates that emotional exhaustion has a significant impact on counterproductive work behaviour.
2. Organisations should adopt family-friendly policies, such as flexible work schedules, remote work options, and childcare support, to lessen conflict between employees' work and family roles, as research shows that work-family conflict has a strong positive effect on counterproductive work behaviour.
3. Managers should create interventions that simultaneously address both stressors by offering resources that refuel employees' energy, such as mentorship programs, resilience training, and regular workload assessments, as emotional exhaustion was found to mediate the relationship between work-family conflict and counterproductive work behaviour. This will minimise the indirect pathway to counterproductive behaviours.

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RELATIONSHIPS BETWEEN ISLAMIC FINANCE, FIRM COMPETITIVENESS AND THE PERFORMANCE OF SMES IN KADUNA STATE

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Abstract

The study examines the effects of Islamic finance on the performance of small and medium-sized enterprises (SMEs), firm competitiveness on SME performance, and the potential mediating role of firm competitiveness in the association between Islamic finance and SME performance in Kaduna State. The study's sample size is 504 SMEs purposively selected from three local government areas in Kaduna State: Sabon-Gari, Kaduna North, and Kubau. A total of 504 copies of questionnaires were distributed to gather data for the study; however, 385 valid responses were received and used for final analysis. The research utilises structural equation modelling as a statistical technique for analysing the data. The results suggest that Islamic finance has a notable and favourable impact on the performance of SMEs. In addition, firm competitiveness plays a constructive and statistically significant role in influencing SME performance. Furthermore, the relationship between Islamic finance and SME performance is significantly mediated by firm competitiveness. Based on the findings, the study suggests that policymakers and financial institutions should prioritise the augmentation of firm-specific capabilities within SMEs in Kaduna State. This approach aims to capitalise on the favourable influence of Islamic finance on the overall performance of these enterprises.

Keywords: Firm Competitiveness, Islamic Finance, Mediation, Nigeria, SME Performance

Introduction

Small and medium-sized enterprises (SMEs) remain central to economic development, particularly in emerging economies where they drive employment generation, innovation, and poverty reduction. Despite their recognised importance, the performance of SMEs varies significantly across countries, with firms in developing economies often underperforming relative to their counterparts in more advanced markets. In Nigeria, for instance, SMEs contribute about 48% to gross domestic product and less than half of total employment, a level that reflects persistent structural constraints limiting their growth and competitiveness (International Labour Organization [ILO], 2023). This underperformance raises critical concerns about the capacity of SMEs to fulfill their expected role in economic transformation.

A key constraint frequently identified in the literature is limited access to appropriate financing. Conventional financing mechanisms in Nigeria have often failed to adequately support SMEs due to high interest rates, collateral requirements, and risk aversion among financial institutions (Muhammad & Adeleke, 2025; Yusuf, 2025). In response, alternative

financing models have gained increasing attention in both policy and academic discussions. Recent policy initiatives, including the introduction of non-interest financing windows by development finance institutions and the Federal Government's National Halal Economy Strategy, signal a growing institutional recognition of the potential of Islamic finance to support SME development.

Islamic finance, grounded in principles of risk-sharing, asset-backing, and ethical investment, has been advanced as a viable alternative capable of addressing some of the structural deficiencies associated with conventional finance (Al Rahahleh et al., 2019; Yusuf, 2025). By offering interest-free and partnership-based financing instruments, Islamic finance is expected to ease financial constraints and support entrepreneurial activities. However, empirical evidence on its effectiveness remains inconclusive. While some studies report positive associations between Islamic finance and firm performance, others highlight persistent challenges such as low awareness, regulatory complexity, and limited adoption among SMEs (Yusuf, 2025; Muhammad & Adeleke, 2025). These mixed findings suggest that the relationship between Islamic finance and SME performance may not be direct or automatic.

Emerging scholarship increasingly recognises that the impact of financial systems on firm outcomes often operates through intermediate mechanisms rather than direct effects. In the context of Islamic finance, this implies that access to Shariah-compliant financial products alone may be insufficient to enhance performance unless firms are able to translate such access into strategic advantages. One such mechanism is firm competitiveness, which reflects the ability of SMEs to leverage resources, improve efficiency, and respond effectively to market dynamics. Islamic finance may enhance competitiveness by providing flexible financing structures that support innovation, expansion, and operational efficiency. However, the extent to which competitiveness mediates the relationship between Islamic finance and SME performance remains largely unexplored.

The majority of previous studies have explored only the direct association between Islamic finance and firm performance, with insufficient investigation into the pathways by which such influence is transmitted (Muhammed & Adeleke, 2025; Khan et al., 2023; Hussein et al., 2021). As a result, there is a clear gap in the literature regarding the indirect pathways linking Islamic finance to performance outcomes. Addressing this gap is essential for developing a more nuanced understanding of how alternative financing models influence SME success, particularly in emerging economies where institutional and market conditions differ significantly from developed contexts.

Against this backdrop, this study examines the mediating role of firm competitiveness in the relationship between Islamic finance and SME performance. By focusing on SMEs in Kaduna State, Nigeria, the study provides context-specific insights into how alternative financing mechanisms interact with firm-level capabilities in shaping performance outcomes. Kaduna State represents a relevant empirical setting due to the prevalence of SMEs and the financial and operational challenges they face, which mirror broader national trends. Through this approach, the study contributes to the literature by moving beyond direct effect models and offering a more process-oriented explanation of how Islamic finance influences SME performance.

Literature Review and Theoretical Framework

Firm Performance, Islamic Finance, and Competitiveness

Firm performance remains a central outcome variable in strategic management and SME research, yet its measurement has evolved beyond narrow financial indicators. While earlier studies relied on profitability, return on assets, and revenue growth (Otto et al., 2019; Saha et al., 2019), more recent work adopts a multidimensional view that incorporates strategic outcomes such as market positioning, innovation capability, and customer retention. This broader perspective is particularly relevant for SMEs in emerging economies, where firms often prioritise adaptability and survival alongside financial returns. As a result, firm performance is increasingly understood as a composite construct reflecting both financial outcomes and competitive positioning.

Within this context, access to finance remains one of the most critical determinants of SME performance. Conventional financial systems in many developing economies impose constraints through high interest rates, stringent collateral requirements, and limited accessibility. Islamic finance has emerged as a potential alternative capable of addressing these structural limitations. Grounded in principles of risk-sharing, asset-backing, and ethical investment, Islamic finance offers financing structures that may be better aligned with the needs of SMEs (Al-Hamdany & Fadhil Mahmood, 2023; Shamsuddeen et al., 2020).

Empirical evidence on the relationship between Islamic finance and firm performance, however, remains inconclusive. While studies conducted in contexts such as Malaysia and Pakistan report positive associations with profitability and growth (Dar et al., 2019; Hamdan & Kassim, 2022), evidence from developing economies, including Nigeria, highlights persistent challenges related to awareness, regulatory constraints, and limited adoption (Yusuf, 2025; Muhammad & Adeleke, 2025). These mixed findings suggest that the effect of Islamic finance on SME performance is neither automatic nor uniform. Instead, its impact likely depends on how effectively firms utilise the financial resources obtained.

From a Resource-Based View perspective, financial capital represents a strategic resource that can enhance firm outcomes when deployed effectively. Islamic finance, as an alternative form of financial capital, is therefore expected to contribute positively to SME performance, particularly in environments where conventional financing is restrictive. This leads to the first hypothesis:

H₁: Islamic finance has a significant positive effect on SME performance.

However, the assumption of a direct relationship between financial access and performance overlooks an important issue. Firms do not convert resources into performance outcomes automatically; rather, they do so through the development of capabilities that enhance their competitive position. This shifts attention to firm competitiveness as a critical mechanism. Firm competitiveness reflects a firm's ability to utilise resources efficiently, innovate, and respond to market conditions in ways that create sustained advantage (Hermundsdottir & Aspelund, 2021). In SME research, competitiveness is consistently linked to improved performance outcomes, as firms with stronger competitive positions tend to achieve higher efficiency, better market share, and superior growth (Rahmawati et al., 2024; Falciola et al., 2020). This establishes competitiveness as a direct driver of firm performance, leading to the second hypothesis:

H₂: Firm competitiveness has a significant positive effect on SME performance.

At the same time, competitiveness itself is shaped by access to resources, particularly finance. Financial support enables SMEs to invest in productive assets, adopt new technologies, and expand operations, all of which strengthen their competitive position (Tran et al., 2024). Islamic finance, with its emphasis on partnership-based financing and flexibility, may enhance SMEs' ability to undertake such investments. From this perspective, Islamic finance does not only influence performance directly but also contributes to the development of firm competitiveness. This leads to the third hypothesis:

H₃: Islamic finance has a significant positive effect on firm competitiveness.

Mediating Role of Firm Competitiveness

Although prior studies have examined the direct link between Islamic finance and firm performance, they largely neglect the mechanisms through which this relationship operates. At the same time, a growing body of literature suggests that organisational capabilities often mediate the relationship between resources and performance outcomes (Liaqat et al., 2025; Ardian et al., 2025). This aligns with the core logic of the Resource-Based View, which emphasises that resources influence performance through their transformation into capabilities.

Applying this reasoning, Islamic finance can be viewed as a resource that enhances firm competitiveness, which in turn drives performance. This indirect pathway provides a more comprehensive explanation of how financial access translates into tangible outcomes for SMEs. Despite its theoretical relevance, this mediating mechanism remains underexplored, particularly in the context of emerging economies such as Nigeria.

Accordingly, this study proposes that firm competitiveness serves as a critical intervening variable linking Islamic finance to SME performance. This leads to the final hypothesis:

H₄: Firm competitiveness significantly mediates the relationship between Islamic finance and SME performance.

Theoretical Framework: Resource-Based View (RBV)

This study is grounded in the Resource-Based View (RBV), which posits that firm performance depends on the possession and effective utilisation of valuable, rare, inimitable, and non-substitutable resources (Barney, 1991). However, RBV also emphasises that resources alone are insufficient; firms must develop the capabilities required to deploy these resources in ways that generate competitive advantage.

Within this framework, Islamic finance is conceptualised as a strategic financial resource that provides SMEs with access to alternative funding structures. Firm competitiveness represents the capability through which this resource is transformed into performance outcomes. The framework therefore supports both direct and indirect relationships, with competitiveness acting as the mechanism linking financial resources to firm performance.

Research Model

Figure 1 presents the conceptual model of the study. Islamic finance is specified as the independent variable, firm competitiveness as the mediating variable, and SME performance as the dependent variable. The model captures both the direct effect of Islamic finance on

performance and the indirect effect operating through competitiveness, consistent with the logic of RBV.

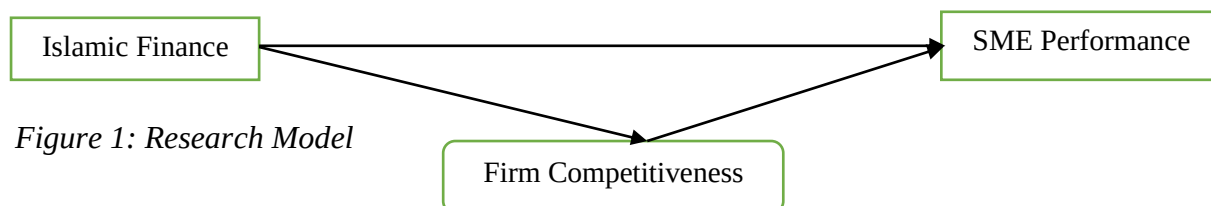


Figure 1: Research Model

This study contributes to the literature by advancing a process-based explanation of how Islamic finance influences SME performance. Rather than treating financial access as an end in itself, it demonstrates that the value of Islamic finance lies in its ability to enhance firm competitiveness, which ultimately drives performance outcomes. In doing so, the study provides a more theoretically grounded and contextually relevant understanding of SME performance in emerging economies.

Materials and Method

The study adopts a cross-sectional survey design to examine the relationships among Islamic finance, firm competitiveness, and SME performance in Kaduna State, Nigeria. The population of the study comprises enterprises operating within Kaduna State, with a specific focus on small and medium enterprises (SMEs). According to the Small and Medium Enterprises Development Agency of Nigeria (SMEDAN) and the National Bureau of Statistics (2021), Kaduna State hosts 38,908 formal enterprises, of which 21,615 are classified as SMEs. These SMEs consist of 1,921 medium enterprises and 19,694 small enterprises, alongside a substantial number of micro enterprises, and collectively contribute approximately 4.3 percent to national SME employment. These enterprises are distributed across the 23 Local Government Areas (LGAs) within the three senatorial zones of Kaduna Central, Kaduna North, and Kaduna South, providing the sampling frame for the study.

The sample size for the study was determined using Dillman's (2000) formula, which yielded a minimum requirement of 336 respondents. To enhance representativeness and reduce potential non-response bias, the sample size was increased by 50 percent, resulting in a total of 504 questionnaires distributed. The study employed a multi-stage sampling procedure. First, three LGAs which are Sabon-Gari, Kaduna North, and Kubau were selected using simple random sampling from the 23 LGAs in the state. These LGAs were selected to ensure geographical spread across the state. Due to the absence of disaggregated SME population data at the LGA level, questionnaires were allocated equally across the selected areas, resulting in 168 copies distributed per LGA.

At the firm level, purposive sampling was adopted to select SMEs whose owner-managers possess knowledge of and actively utilise Islamic banking services. This criterion was necessary to ensure that respondents could provide informed and relevant responses to the study variables. Consequently, SMEs without awareness or usage of Islamic finance were excluded from the study. While this enhances data relevance, it limits generalisability beyond firms engaged with Islamic financial services.

Data were collected using a structured, self-administered questionnaire. The instrument was adapted from validated scales in prior studies. Islamic finance was measured using eight items adapted from Aburime and Alio (2009), focusing on access to and utilisation of Islamic

financial services. Firm competitiveness was measured using a five-item scale developed by Sigalas et al. (2013), capturing the firm's ability to achieve and sustain competitive advantage. SME performance was measured using eight items adapted from Spillan and Parnell (2006), covering both financial and non-financial performance indicators. All items were measured using a Likert scale consistent with prior empirical studies in SME research.

To ensure the quality of the measurement instrument, a pilot study was conducted using 30 SMEs in Kaduna State. These respondents were excluded from the main survey. The pilot study assessed reliability and validity using established statistical criteria. Composite reliability was used to assess internal consistency, while Average Variance Extracted (AVE) was used to evaluate convergent validity. Discriminant validity was assessed using the Heterotrait–Monotrait (HTMT) ratio. The results confirm that all constructs meet acceptable thresholds for reliability and validity.

As presented in Table 1, all constructs recorded AVE values above 0.50, composite reliability values above 0.70, and Cronbach's alpha values above 0.70, indicating satisfactory internal consistency and convergent validity (Garson, 2016).

Table 1: Constructs Reliability

Constructs	AVE	Composite Reliability	Cronbach's Alpha
Islamic Finance	0.59	0.811	0.802
Firm Competitiveness	0.61	0.824	0.805
SME Performance	0.65	0.846	0.836

Discriminant validity was assessed using the HTMT ratio. Following Hair et al. (2019), HTMT values below 0.90 indicate adequate discriminant validity. As shown in Table 2, all constructs recorded HTMT values below the recommended threshold, confirming satisfactory discriminant validity.

Table 2: Heterotrait-Monotrait Ratio (HTMT)

Construct	Firm Competitiveness	Firm Performance
Firm Performance	0.752	
Islamic Finance	0.742	0.722

Data were analysed using Structural Equation Modelling (SEM) with the Partial Least Squares (PLS) approach, implemented in SmartPLS 3. This technique was selected due to its suitability for complex predictive models involving mediation and its robustness with moderate sample sizes. The analysis followed a two-stage procedure involving assessment of the measurement model and the structural model. Bootstrapping was employed to test the significance of direct and indirect effects, particularly the mediating role of firm competitiveness. Overall, the methodological approach is consistent with established practices in SME and Islamic finance research and provides a robust framework for examining the hypothesised relationships in the study.

Results and Discussion

A total of 504 copies of questionnaires were distributed for the study; however, only 402 copies of questionnaires were retrieved from respondents, amounting to an 80% response rate, which is deemed appropriate for the study. The study tested for missing data, and only 0.85% of the data set, which is significantly below the 10% benchmark, was found missing.

However, mean substitution was used by the study to replace the missing data (Hair et al., 2014) since the missing values occurred at random. In addition, the study utilised Mahalanobis distance (D^2) to detect outliers using a 0.001 level of significance (Hair et al., 2014). Thus, 17 cases were detected as outliers and were deleted from the data set. Consequently, a total of 385 cases were used for analysis.

Measurement Model

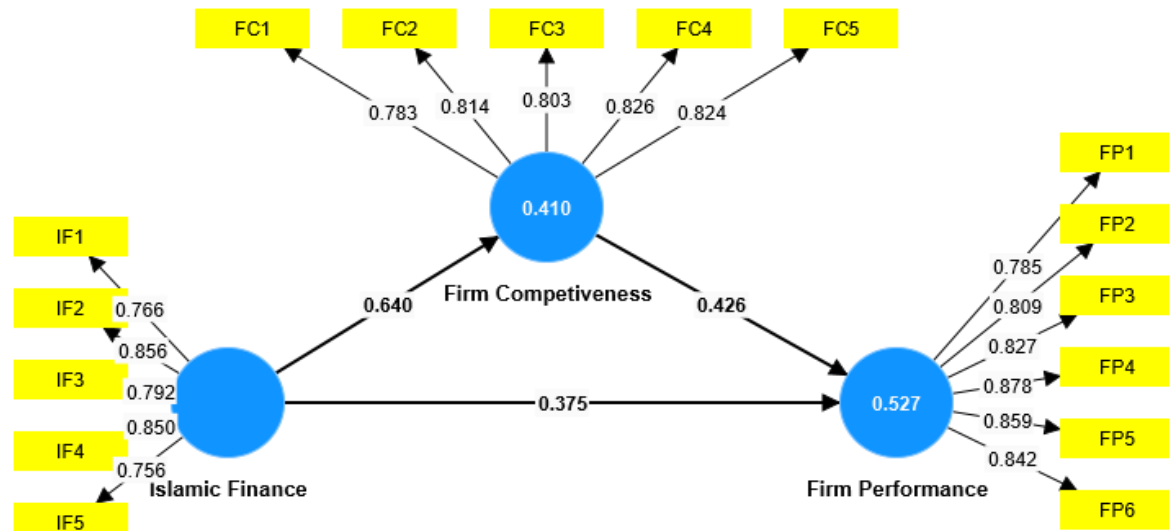


Figure 2: Measurement Model

Table 3: Construct Reliability and Validity

Construct	Item	Loadings	AVE	CR	CA
Islamic Finance	IF1	0.766	0.649	0.869	0.864
	IF2	0.856			
	IF3	0.792			
	IF4	0.850			
	IF5	0.756			
Firm Competitiveness	FC1	0.783	0.656	0.871	0.869
	FC2	0.814			
	FC3	0.803			
	FC4	0.826			
	FC5	0.824			
SME Performance	FP1	0.785	0.695	0.917	0.912
	FP2	0.809			
	FP3	0.827			
	FP4	0.878			
	FP5	0.859			
	FP6	0.842			

Note: AVE represents Average Variance Extracted; CR represents Composite Reliability; CA represents Cronbach's Alpha. Note IF6-8, FP7-8 were deleted due to measurement issues. Table 3 shows that all constructs met the minimum benchmark for Cronbach's Alpha, composite reliability, and AVE, which are 0.7, 0.7, and 0.5 respectively (Hair et al., 2014). All items loaded above 0.7 (except for IF6-8 and FP7-8). Therefore, all items on Table 3 were retained. The constructs were next tested for discriminant validity using the Heterotrait-monotrait ratio (HTMT). The data showed discriminant validity as presented in Table 4, as all HTMT values were below 0.9 (Hair et al., 2019).

Table 4: HTMT

Construct	Firm Competitiveness	Firm Performance
Firm Performance	0.744	
Islamic Finance	0.732	0.715

Test of Hypotheses

It is important to test for the direct effect of the exogenous variables on the endogenous variable. Bootstrapping was performed using 5000 subsamples with 385 cases.

Figure 3: Structural Model

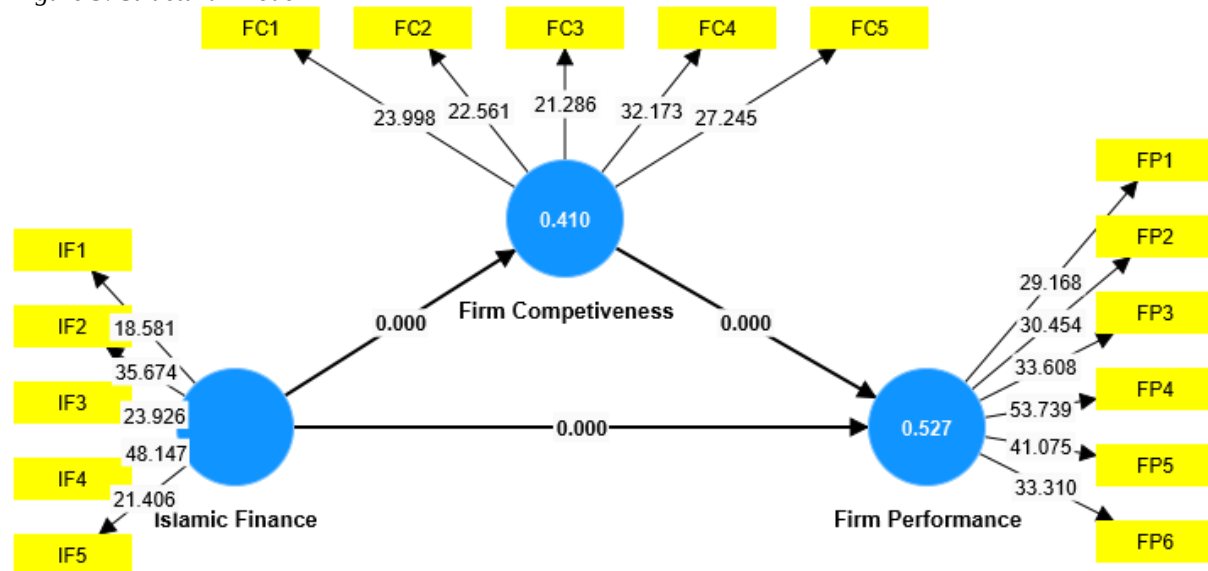


Table 5: Path Coefficient

Relationship	Beta Value	Std. Error	T Stat	P Value	Decision
Islamic Finance->SME Performance	0.375	0.059	6.379***	0.000	Rejected
Firm Competitiveness->SME Performance	0.426	0.059	7.286***	0.000	Rejected
Islamic Finance-> Firm Competitiveness->SME Performance	0.273	0.040	6.800***	0.000	Rejected

***p < 0.01; **p < 0.05; *p < 0.1

The analysis in Table 5 shows that Islamic finance has a positive and significant effect on the performance of SMEs in Kaduna State ($\beta = 0.375$, $p < 0.01$). Therefore, hypothesis one, which states that Islamic finance has no significant effect on the performance of SMEs in Kaduna State, is statistically rejected. Similarly, firm competitiveness is a significant predictor of SME performance in Kaduna State ($\beta = 0.426$, $p < 0.01$). Therefore, hypothesis two, which states that firm competitiveness has no significant effect on the performance of SMEs in Kaduna, is also rejected. Finally, Table 5 shows that firm competitiveness significantly mediates the relationship between Islamic finance and SME performance ($\beta = 0.273$, $p < 0.01$). This means that firm competitiveness is a significant intervening variable between Islamic finance and SME performance.

Table 6: R Square

Construct	R Square
SME Performance	0.527
Firm Competitiveness	0.410

Table 6 presents the result of the R square of the study. SME performance has an R Square of 53%, meaning that 53% of the change in the performance of SMEs is accounted for by Islamic finance and firm competitiveness. On the other hand, firm competitiveness has an R square value of 41%, meaning that 41% of the variance in firm competitiveness is accounted for by Islamic finance.

Discussion of Findings

The findings indicate that Islamic finance and firm competitiveness exert significant positive effects on SME performance in Kaduna State. These results carry clear implications for policymakers, financial institutions, and SME owners seeking to strengthen firm outcomes and competitive positioning within the region. The evidence shows that the use of Islamic finance improves SME performance, which supports the argument that Shariah-compliant financial instruments can address financing constraints in emerging economies. Islamic finance provides ethical, interest-free alternatives that enable SMEs to access capital for expansion and investment while maintaining compliance with religious principles. This result aligns with prior evidence that links Islamic financial services to improved firm outcomes (Al-Awlaqi & Aamer, 2022). Empirical support from Nigeria also exists. Babatunde and Yusoff (2024) show that Mushārakah financing significantly enhances SME financial performance in Lagos State. In addition, industry evidence indicates that Shariah-compliant equity funds generated returns of 14%–16% in 2025, which reinforces the practical relevance of Islamic finance for firm performance (Non-Interest Investment Forum, 2026).

The relationship between firm competitiveness and SME performance confirms the importance of firm-level capabilities. Firms that perform well in innovation, market positioning, customer service, and operational efficiency achieve stronger outcomes than competitors (Chikán et al., 2022). This result is consistent with the resource-based view, which emphasizes that valuable and well-deployed resources drive competitive advantage and performance (Barney, 1991). Supporting evidence shows that entrepreneurial orientation and market orientation improve SME performance (Rahmawati et al., 2024), while financial support strengthens the competitiveness–performance link (Tran et al., 2024). These findings reinforce the argument that competitiveness operates as a direct driver of firm performance.

The central contribution of this study lies in the mediating role of firm competitiveness. The results show that Islamic finance influences SME performance both directly and indirectly through competitiveness. Access to Islamic finance alone does not guarantee improved outcomes. Firms must convert financial resources into capabilities that enhance strategic positioning, innovation, and responsiveness to market conditions. The evidence indicates that improvements in competitiveness explain a substantial share of the performance gains associated with Islamic finance.

This mediation result is consistent with recent studies that emphasize capability-based transmission mechanisms. Jufri et al. (2024) find that strategic agility mediates the relationship between Islamic entrepreneurship and business performance. Similarly, Liaqat et al. (2025) show that organizational agility mediates the effects of governance, risk management, and financial innovation on performance in Islamic financial institutions. Evidence from banking studies also shows that operational efficiency acts as a mediating mechanism between macroeconomic factors and bank performance (Al Sharif, 2026). Together, these findings support the argument that organizational capabilities translate financial resources into performance outcomes.

The findings also carry practical implications. Financial technology plays a role in expanding the reach and effectiveness of Islamic finance. Evidence shows that digital banking channels such as mobile applications and automated teller machines improve financial inclusion in Nigeria (Arowona et al., 2025). At the same time, structural constraints remain severe. Reports indicate that unreliable electricity and broader infrastructure challenges impose substantial economic losses on Nigerian SMEs, which limits their performance potential (CPPE Policy Brief, 2026). Policy developments in the financial sector provide a pathway to address these issues. The introduction of non-interest financing instruments such as Ijara and Mudaraba by the Bank of Industry expands access to Islamic finance for underserved firms (Bank of Industry Nigeria, 2026; Ecofin Agency, 2026). These instruments create a practical mechanism through which Islamic finance can strengthen SME competitiveness and performance.

Conclusion and Recommendations

The study has yielded significant findings regarding the interconnections among Islamic finance, firm competitiveness, and the performance of SMEs in Kaduna State. The results suggest that the performance of SMEs is influenced significantly by both Islamic finance and firm competitiveness. The significant positive impact of Islamic finance on the performance of SMEs highlights the crucial role of incorporating ethical and Shariah-compliant practices in finance. This discovery is consistent with prior scholarly investigations and underscores the potential advantages of Islamic finance in fostering sustainable economic expansion and ensuring financial stability among SMEs in the study areas.

Additionally, the study discovered that firm competitiveness plays a crucial role in mediating the connection between Islamic finance and the performance of SMEs. This significant discovery implies that the beneficial influence of Islamic finance on SMEs is not solely direct but also occurs through the improvement of firm-specific capabilities. Therefore, companies that demonstrate exceptional performance in domains such as innovation, market positioning, and operational efficiency are more likely to outperform their rivals and attain superior performance outcomes. This finding is consistent with Liaqat et al. (2025), who confirmed that organizational capabilities serve as mediators between Islamic finance factors and performance outcomes.

Based on the conclusion above, the study suggests several recommendations for enhancing the positive influence of Islamic finance on the performance of SMEs in Kaduna State. Policymakers and financial institutions should engage in collaborative efforts to enhance the robustness of the Islamic finance ecosystem. This can be achieved through the establishment of additional financial institutions that adhere to Shariah principles and a regulatory framework that facilitates such endeavours. A comprehensive Islamic finance ecosystem will offer SMEs a wide array of ethical and sustainable financing alternatives to facilitate their development and enlargement.

Policymakers and financial institutions should actively encourage the implementation of Islamic finance within the SME sector in Kaduna State. Promoting the adoption of Islamic finance options among SMEs can afford them the opportunity to avail themselves of ethical and sustainable funding sources, thereby facilitating their expansion and bolstering their financial resilience. The study also recommended creating awareness campaigns, seminars, and workshops aimed at educating SME owners regarding the fundamental principles and advantages associated with Shariah-compliant financial products. Mahmoud et al. (2025)

identified Islamic financial literacy as a key moderator for Fintech adoption among Nigerian Muslim entrepreneurs, reinforcing the call for educational campaigns. Muhammad and Adeleke (2025) similarly validated that awareness and marketing of Islamic finance are crucial, as their study showed a "disconnection between moral positioning and actual financing decisions" (p. 8) when structural barriers exist.

The Federal Government of Nigeria (2026) launched the National Halal Economy Strategy, projected to add \$1.5 billion to Nigeria's GDP by 2027, with explicit focus on supporting SMEs. The findings of this study validate this national strategy, and it is recommended that its expansion be prioritized in Kaduna State. The UNIDO IFETAA Programme Report (2025) suggests international best practices for scaling Islamic finance for SME competitiveness, including the development of tailored financial products for MSMEs and capacity-building programmes for entrepreneurs. These international best practices should be adapted to the Kaduna State context.

In light of the mediating influence of firm competitiveness on the association between Islamic finance and SME performance, it is imperative to focus on bolstering the competitive capacities of SMEs. Policymakers and stakeholders ought to prioritise endeavours aimed at enhancing innovation, market positioning, and operational efficiency within SMEs. The provision of support for training, capacity-building programmes, and access to market information has the potential to enhance the competitive advantage of SMEs in the market. Okoh et al. (2024) found that customer satisfaction, government support, and trust in non-interest banks significantly influence financial inclusion, supporting the recommendation for government backing and customer-centric strategies. Therefore, government support should be strengthened, and customer trust should be built through transparent and reliable Islamic financial services.

Limitations and Future Research

The study acknowledges several limitations. The CPPE Policy Brief (2026) documented that external economic constraints, including energy costs and inflation, pose significant challenges to Nigerian SMEs. These factors may moderate the effects found in this study and should be investigated as potential moderating variables in future research. The cross-sectional design of this study limits the ability to establish causal relationships; future research should employ longitudinal designs to examine the dynamic relationships between Islamic finance, firm competitiveness, and SME performance over time.

Furthermore, the study focused only on SMEs in Kaduna State. Future research should expand the geographical scope to include other states in Nigeria to enhance the generalizability of the findings. Additionally, future studies could examine other potential mediators, such as strategic agility as demonstrated by Jufri et al. (2024), or moderators such as Islamic financial literacy as identified by Mahmoud et al. (2025). Comparative studies between Islamic finance users and conventional finance users would also provide valuable insights into the differential effects of these financing modes on SME performance and competitiveness.

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FINANCIAL TECHNOLOGY AND FINANCIAL INCLUSION IN NIGERIA: A FULLY-MODIFIED ORDINARY LEAST SQUARE APPROACH

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Abstract

This paper evaluates the effect of financial technology Fin-Tech on Nigeria's financial inclusion, with a focus on instant pay, web-based and mobile money transactions. The study was conducted to have used Secondary Data, generated and analyzed using fully-modified ordinary least square (FMOLS) methods to estimate the relations between financial technology Fin-tech and Nigeria's financial inclusion on a quarterly time-series data spanning from 2012Q1 to 2025Q4. The findings revealed that instant pay transactions have the significant and positive impact on financial inclusion in Nigeria with 4.5185, followed by web-based transactions with 0.6606 and mobile money transactions with 2.4133 as their respective estimated coefficients. In collection, these mentioned variables accounted for 73. % of the variation in Nigeria's financial inclusion ($R\text{-Squared} = 0.73$). The study concluded that financial technology Fin-Tech are crucial in shaping financial inclusion not only in Nigeria but all over the world. The study recommends that, the government, in collaboration with private entities, should provide and at the time strengthen digital infrastructure and mobile network connections to ensure reliable and convenient access to internet all over the country. Again, the expansion of internet-based transactions that is arguably increasing cyber-security threats calls for the enactment and application of cyber-security measures and public awareness campaigns to safeguard the Nigeria's digital financial infrastructures.

Keywords: Financial inclusion, Financial technology, Instant pay transactions, Mobile money transactions, Web-based transactions

Introduction

Prior to the evolution of financial technology, popularly known as Fin-Tech, financial services was somewhat inaccessible by underprivileged members of society. Existing literature have paid little attention to how digital services affected women, farmers and less-privileged. In a recent time, financial inclusion has received an increased attention due to the role that it plays in building an inclusive financial system (Seth and Dahiru, 2026).

The adoption of financial technology (fin-tech) that enables digital financial services was launched all over the world to promote financial inclusion. Financial technology (Fin-Tech) is the adoption/application of technology by the commercial banks to provide a wide range of value-added financial services to the customers and it involves marrying and or synthesizing financial services with innovative, modern and advanced technology to ease financial service delivery. (Haruna, and Dibal, 2024).

Financial Technology serves as a catalyst for solving a big deal of problems that are in connection with financial inclusion in a more efficient way than traditional financial intermediaries. Therefore, the rationale behind financial technology (Fin-Tech) is to reach out to all the segment of the society that the traditional/conventional financial sectors have since failed to cover. (Haruna, et al., 2024).

Financial inclusion, on the other hand, is referred to the availability of financial services to all categories of people, especially, the vulnerable, less-privileged and low-income adults to enjoy fair and sustainable financial services in an economy. (Jiang, Tong, Hu, and Wang, (2019). These financial services include payments, insurance, pensions, professional advisory, stock market, wealth management, capital restructuring, banking, portfolio management, equity, loan, and insurance products, (World Bank, 2014). To promote financial inclusivity, the Nigerian government through the Central Bank of Nigeria (CBN) has introduced the National Financial Inclusion Strategy (NFIS) in 2012 with the sole purpose of making at least 80% of Nigerian citizens, especially adults to access financial services at an affordable rate. Based on the report from National Financial Inclusion Strategy (2020), financial inclusion would only be achieved when adult, be it privileged on underprivileged Nigerians have an access to reasonably priced financial products and services that suit their needs and desires. These financial transactions/services include electronic commerce, electronic investments, electronic insurance, electronic savings, and electronic payments. Margijoyo, Kusuma and Siti (2024) were of the view that mobile banking transaction is one of the main drivers of financial inclusion that helps in drawing more people into the financial sector in emerging and less developed countries.

Kama and Adigun (2013) expressed that 54 percent of adults who happen to be bankable all over the world lack formal financial access. The problem is particularly heavy in less developed countries (LDCs), where up to 70 percent of those bankable are insufficiently provided with formal financial system deliveries, this renders them financially excluded. Nigeria, with a population that exceeds 200 million as of 2026, which is equivalent to 2.92% of the total world population (Worldometer, 2026) has 43 percent of its bankable adult population that do not have formal access to financial service deliveries (Ene, Abba, and Fatokun, (2019). To overcome these challenges, there must be the employment of financial technology (Fin-Tech) in terms of e-banking. This would lead to the attainment of financial inclusion in less-developed countries, Nigeria inclusive.

It was reported by Enhancing Financial Innovation and Access (EFInA) 2020 survey that, there were almost 38 million adults citizens in Nigeria who were financially excluded and this led Nigerian government to have implemented several policies by establishing community and microfinance banks to integrate financial inclusion into the Financial System Strategy 2020 (FSS 2020), which was seen as a foundation for the growth of Nigeria's financial sector. In spite of all these efforts, Nigeria is yet to realize a substantial level of financial inclusion to do away with poverty that is ravaging the country, distance, financial illiteracy, and non-affordability of financial services.

In light of this, this research set out to analyze the impact of financial technology (Fin-Tech) on Nigeria's financial inclusion using the volume of instant payment transactions (IPT), the volume of internet banking transactions (IBT) and the volume of mobile money transactions (MMT) as the measures of financial technology in Nigeria with the data spanning from 2012Q1-2025Q4 to capture the significant digital financial services and fin-tech innovations that gained momentum during the period. This study adopted the volume of Deposit Accounts with Commercial Banks as the measure of financial inclusion. The remaining part of this study is organized as follows: this section is followed by the literature review, the section three is the methodology, followed by results presentation and discussions, and last section entails conclusions and recommendations of the study.

Literature Review

Empirical Review

Many researches that examined and analyzed the relations that exist between financial technology, popularly known as Fin-Tech and financial inclusion are still inconclusive and they generated mixed views and opinions. Studies that include Seth, and Dahiru, (2026); Olubunmi, and Rufus, (2023); Lv and Xiong (2022); Kanga, Oughton, Harris and Murindea (2021); Chinoda and Mashamba (2021); Bakari, Donga, Hedima, Babayo and Ibrahim (2019); Ene, Abba, and Fatokun (2019); and Asongu, Odhiambo and Le Roux (2019) explained that Fin-Tech does impact financial inclusion in a positive way, whereas some found negative relationship that exists between Fin-Tech and financial inclusion and they include Adewumi, and Olaoluwa, (2023); Wale-Awe, Alabi & Omoloye, (2020); Enueshike & Okpebru, (2020); Tah, (2019); Ouma, Odongo, & Were, (2017); and Evans (2016). In trying to investigate the impact of financial inclusion on Nigeria's economic growth, using the Ordinary Least Squares technique. Kehinde, Olayinka and Nwanneka (2017) found that delivery of credit to the private sector did not significantly foster Nigeria's economic growth. The study also showed that financial inclusion in Nigeria has helped in alleviating poverty in country through rural credit delivery.

Babatunde and Raymond (2019) investigated the relationship between internet usage, financial inclusion and economic growth in Nigeria, applying Fully Modified Ordinary Least Squares (FMOLS) method for analysis. The results indicated that Internet usage has positively and significantly impacted financial inclusion and economic growth in Nigeria. Though, financial inclusion influenced economic growth in a negative way. Furthermore, the impact of the interacted parameters of financial inclusion and internet usage on economic growth is positive, though, insignificant.

However, works of Fatima, Sonia, Gidado, Saidu, (2025) on evaluating the effect of financial technology on financial inclusion in Nigeria showed that mobile banking has the most significant impact on financial inclusion. The study concluded that financial technology are crucial in sustaining customers' loyalty in Nigeria's financial technology. Findings of Ephraim, Etima and Udo, (2023), while exploring the nexus between financial technology and financial inclusion in Nigeria, the ARDL bounds test co-integration results showed evidence of a long-run relation between financial technology, financial inclusion, and economic growth where financial technology positively and significantly affects financial inclusion and economic growth in Nigeria. While employing a descriptive survey research to assess how financial technology (Fin-Tech) enhances access to/usage of SMEs' quality of financial services,

Odeh, Daniel and Abdullahi, (2025) expressed that financial technology (Fin-Tech) significantly affects SMEs' financial inclusion. They concluded that financial inclusion tools and financial accessibility and performance of SMEs are significantly related Nigeria. Nkiru, and Daniel, (2022) investigated the effect of financial inclusion on Nigeria's economic growth. The study found that total bank loan and Nigeria's economic growth are negatively related.

Theoretical Framework

The Technology Acceptance Model (TAM)

Technology Acceptability Model (TAM) was developed by Fred D. Davis in 1989. The acceptance of technological advancement by individuals, enterprises, organizations, and banks is explained by the notion of technological acceptance. This acceptance of technological advancement improves financial development. The Technology Acceptance Model provides a vital framework that explains the deployment of digital financial services as well as its implications for financial inclusion in LDC's, Nigeria inclusive. The theory posits that the behavior of the users towards a system is a major factor that determine whether the users will actually use or reject the system.

Technology Acceptance Model propounds that two primary determinants of perceived ease of use and perceived usefulness affect users' behaviors toward a technological advancement, which in turn refine their attitudinal intentions and actual usage (Davis, 1989). Technology Acceptance Model also explores the individual's attitude toward particular system and it provides details and clarifies reasons why client accepts or dismisses a technological advancement. Technology Acceptance Model can be adopted to explain the digitized financial services to clarify the presence of changes in the attitudes of consumers especially when it comes to utilize the related digital financial services (Iwasaki (2022).

In the Nigeria's financial system, where digital financial services such as internet banking, mobile banking, mobile money and point-of-sale (POS) devices are critical and main drivers of financial inclusion, Technology Acceptance Model delivers significant insight into the behavior and adoption patterns of the user. (Fatima, Sonia, Gidado, and Saidu 2025). Perceived usefulness is crucial to the deployment of financial technology in Nigerian economy. When Nigerians believe that digital banking or mobile money fosters efficiency, accessibility and security, they would be more likely to employ such innovations, for digital banking adoptions have reduced the cost of transactions and time that make financial innovations more attractive to un-banked and underserved populations. (Samuel, Dumebi, Ayomide, Uchechukwu, Tochukwu, and Ifunanya 2024). This perception helps in bridging the financial gap, especially in villages where conventional banking infrastructures are scarce.

Materials and Method

This study employed ex-post facto research design and is characterized by inability of a researcher to manipulate and or influence the data in question. Ex-post facto design is used to examine what had occurred in the past to understand the current and future economic situation. This research design is more appropriate and relevant for this study since it describes the statistical co-relation between variables. The primary objective of this study is to establish a connection between Fin-tech and financial inclusion in Nigeria for the period

(2012Q1-2025Q4). For this, the core data sets that is secondary in nature have been sourced from recognized publications that include the Central Bank of Nigeria (CBN) statistical bulletin and National Bureau of Statistics (NBS). The variables that would serve as proxy for financial technology (Fin-Tech) are Instant Pay Transactions, Internet Banking Transactions and Mobile Money Transactions. Financial inclusion is represented by the number of Deposit Accounts with Commercial banks.

Model Specification

The model for the study adapts and modifies the framework of Kehinde, Olayinka, and Nwanneka, (2017) whose focus was on the effect of financial inclusion on economic growth and development in Nigeria. For this research, the mathematical form or specification of the model that shows the role of financial technology (Fin-Tech) in enhancing financial inclusion in Nigeria is specified as:

$$DAC_t = f(IPT, IBT, MMT) \dots \dots \dots (1)$$

In a linear stochastic or econometric form, the equation (1) was specified as:

$$DAC_t = \beta_0 + \beta_1 IPT_t + \beta_2 IBT_t + \beta_3 MMT_t + \mu_t \dots \dots \dots (2)$$

Where: DAC being the financial inclusion to be measured by Deposit Accounts with Commercial Banks that depends on financial technology measured by instant payment transactions (IPT), internet banking transactions (IBT) and mobile money transactions (MMT). The parameters are represented by β_1 , β_2 and β_3 , whereas the disturbance term is denoted by μ_t is the disturbance term at time t .

Equations (2) would be re-modelled into a Fully Modified Ordinary Least Square method (FMOLS) as:

$$DAC_t = \beta_0 + \sum_i^p (\beta_1 IPT_t) + \sum_i^p ((\beta_2 IBT_t)) + \sum_i^p (\beta_3 MMT_t) + \mu_t \dots \dots \dots (3)$$

Equation (3) represents the long run co-relation between DAC and the carefully selected Fin-Tech variables using the Fully Modified Ordinary Least Square (FMOLS) method. The parameter estimates will give shed light on how each of the selected financial technology (Fin-Tech) variables affects financial inclusion in Nigeria. It is pertinent to note that, Fully Modified Ordinary Least Square (FMOLS) method is superior and robust in the face of the issue of endogeneity that negates the necessity for the application of the two-stage least squares method. (Seth, et. Al., 2026). FMOLS is able to correct potential endogeneity in the independent variables and serial correlation in the random terms resulting from the feedback impact between variables. Fully Modified Ordinary Least Square (FMOLS) can be employed regardless of whether the series in question are integrated of order one, $I(1)$, order two, $I(2)$ or mixed. Thus, Fully Modified Ordinary Least Square (FMOLS) allows regression analysis without the assumptions about the integration properties of the variables in question. (Wale-Awe, et. Al., (2020).

Estimation Procedure

Unit Root Test

Secondary data often shows tendencies that would be addressed via differencing to ascertain the stationarity or non-stationarity of the series. This test would help in determining the authenticity of the relationship that exists between financial technology (Fin-Tech) variables and the financial inclusion in Nigeria. Thus, the null hypothesizes non-stationarity in the series. A series is presumed as non-stationary when t-statistic lags behind its critical value, when taken in absolute terms, at a specific level of significance. Table 1 shows the results of the Augmented Dickey-Fuller test, an crucial step in time series analysis that is employed to

determine whether the series is stationary or not. Stationarity implies that the series is stationary if its mean, variance and co-variance remain constant over time.

Results and Discussion

Table 1: Results for Augmented Dickey-Fuller ADF Test

Variables	T-Statistics for ADF	Critical Value (CV)	Integration Properties
DAC	-4.854817	-4.631898*	I(1)
IPT	-6.349470	-3.087402**	I(1)
IBT	-4.184818	-3.181226*	I(1)
MMT	-4.375482	-4.293913**	I(1)

Source: Authors' Computation, 2026 (Eviews-14)

*, **, implies significance at 1%, and 5%

The ADF test statistic, with respect to DAC variable is -4.854817, which is bigger than its critical value (CV) at 1% significance level (-4.631898*). This suggests that DAC happens to be stationary at first difference, hence it is integrated of order one, I(1). In a similar way, the Instant Pay Transactions variable (IPT) has an ADF t-statistic of -6.349470 which is more negative than the critical value (CV) at 5% level of significance (-3.087402**), showing strong evidence of the absence of unit root of the series. Therefore, IBT variable is integrated of order one, I(1) with the critical value (-3.181226*) lagging behind the value of its ADF t-statistic (-4.184818) at 1% significance level. For the Mobile Money Transactions (MMT), the t-statistic of ADF is -4.375482 that surpasses the critical value (CV) at 5% level of significance (-4.293913**). Thus, MMT is stationary at first difference and is integrated of order one, I(1). Therefore, all the series in Table 1 are integrated of order one, I (1).

Engle-Granger Co-integration Test

Building upon the foregoing discussion on the analysis of relationship that exists between financial technology (Fin-Tech) and financial inclusion, the Table 2 uncovers a crucial aspect of the analysis of the co-integration of financial variables. Co-integration assures that even if the variables are non-stationary, their linear combinations, that is, their long-run relation can be stationary.

Table 2: Results for Engle-Granger Co-integration Test (Residual Based)

Variables	T-Statistics for ADF	95% Critical Value for ADF	Remark
Residual	-3.896152	-3.732296**	Cointegrated

Source: Authors' Computation, 2026 (Eviews-14)

** Significance at 5%

In Table 2, the Augmented Dickey-Fuller (ADF) t-statistic for the residuals is -3.896152, which surpasses the critical value at the 5% level of significance that assumes -3.732296**, indicating co-integration of long-term equilibrium relationship that exists between financial technology (Fin-Tech) and financial inclusion in Nigeria.

Fully-Modified Ordinary Least Square Method

Building upon the ongoing discussion as regards the effect of financial technology (Fin-Tech) on financial inclusion in Nigeria, the Table 3 offers some fascinating insights into regarding the influence of financial technology variables on the Nigeria's financial inclusion, as measured by DAC.

Table 3: Results for Fully-Modified Least Square (FMOLS) Method Explained Variable: DAC

Variables	Co-efficient	T-Statistics	Standard Error	Probability
IPT	4.5185	2.3717	1.5246	0.0116
IBT	0.6606	2.9366	0.3282	0.0212
MMT	2.4133	2.1044	1.2302	0.0214
C	26.4322	17.2442	1.6872	0.0000

$R^2=0.73$ Adj. $R^2=0.62$ Long-run variance=9.8 Wald F-stat.=6.4 Wald F-stat. (p-value) = 0.0302

Source: Authors' Computation, 2026 (Eviews-14)

To start with the instant pay transactions (IPT), its coefficient of 4.5185 is statistically insignificant at the 0.0116 level and the positive sign attached to the value exhibits a direct relationship with deposit accounts for commercial banks (DAC) as a surrogate for financial inclusion in Nigeria. This is in line with economic a priori, since it suggested that as instant pay transactions (IPT) increase, the value of DAC would also increase. The internet banking transactions (IBT) has a positive coefficient of 0.6606 that is significant at 0.0212 level. This signifies a positive correlation with DAC, suggesting that as internet transactions surge, the country's financial inclusion would grow. It is deduced that, internet banking transactions that encompasses all online services, e-commerce and other web-based finances tend to contribute in a positive way to Nigeria's financial inclusion. Based on the outcome of the p-value of 0.0212 that happens to be less than 5%, the study concludes that internet banking transactions (IBT) has significantly affected Nigeria's financial inclusion within the study period. Further, the mobile money transactions (MMT) also has a positive, direct and significant relationship with 2.4133 as the coefficient and 0.0214 as its p-value.

The influence of mobile transactions would not be underestimated where mobile adoption is really high in Nigeria. Thus, the positive coefficient of mobile money transactions (MMT) suggests that, as the adoption and usage of mobile money solutions go up, the financial inclusion in Nigeria would be enhanced.

Besides, the R^2 value of 0.73 implies that, 73% of the changes in the explained variable of deposit accounts of commercial banks (DAC) can be explained by the explanatory variables of instant pay transactions (IPT), internet banking transactions (IBT) and mobile money transactions (MMT) in the model. This value of R-squared indicates that, the regression line has captured a significant portion of the changes in the dependent variable. The Wald F-statistic of 6.4 and Wald F- statistic (p-value) of 0.0302 was used to testify that, instant pay transactions (IPT), internet banking transactions (IBR), and mobile money transactions (MMT) in the model are jointly significant at 5% significance level. This indicates that, the financial technology (Fin-Tech) variables play an important role in determining the variation in financial inclusion (DAC).

Residual Test

Table 4: Results for Residual (Diagnostic) Test

Tests		Coefficient	Prob.
Normality Test	Jarque-Bera	4.683812	0.2556
Serial correlation (Correlogram Q-Statistics)	F-statistic	3.278532	0.3271

Source: Authors' Computation, 2026 (Eviews-14)

Table 4 shows the outcomes of diagnostic test that provides insight whether or not the model is qualitative and valid in the study.

The Jarque-Bera statistic, under normality test, assesses whether or not the residuals are normally distributed. The Jarque-Bera co-efficient stands at 4.683812 with a probability value of 0.2556 which is greater than 5%. This p-value shows that the residuals in the model do not deviate from normal distribution. Next is the serial correlation (correlogram Q-

Statistics) test that is applied to unveil any possible serial correlation found in the error terms. In this test, an F-stat. of 3.278532 with a probability value of 0.3271 is observed. Thus, the probability value is greater than 5% and it shows that, the residuals in the model are serially un-correlated. Therefore, it is concluded that, the fully-modified ordinary least square regression model is well-fitted whose residuals are serially correlated and normally distributed.

Discussion of Findings

Findings from the study established a positive impact that exists between instant pay transactions (IPT) and Nigeria's financial inclusion, though the relationship is statistically significant. This result is in line with results of Bakari, et al., (2019) and Chinoda, et al., (2021). In addition, findings from the study also indicated that internet banking transactions and mobile money transactions (MMT) have significantly promoted Nigeria's financial inclusion. The findings implied that, with an increasing adoption and use of internet-based transactions and mobile money transaction, the less-privileged, un-banked and under banked adult Nigerians are more likely to be formally and adequately financially included. One of the reasons is that of having direct access to the internet and mobile money transaction which would eliminate logistical and geographical barriers. Further, businesses are likely to tap more revenue and ensure a more sustained flow of cash that would enable them to invest and re-invest in their enterprises and these would provide easy access to financial services, facilitate soft and secure transactions to enhance financial inclusion by empowering large portion Nigerians. This notion aligns with the works of Evans, (2016), Ephraim, et al., (2023) and Fatima, et al., (2025) who observed the influence of internet web transactions, mobile banking and electronic commerce on financial inclusion. They posited that technological advancement, when applied in financial platforms would lead to better financial inclusivity of less-privileged, un-banked and under banked population.

Conclusion and Recommendations

Over the past decade, financial technology (Fin-Tech) has surfaced as a significant driver that happens to influence financial inclusion, especially in less-developed countries that include Nigeria. The main objective was to analyze the effect of financial technology (Fin-Tech) on Nigeria's financial inclusion spanning from 2012Q1 to 2025Q4. Three important conclusions appeared from foregoing discussions:

That, the increase in instant pay transactions (IPT) has notably enhanced financial inclusion in Nigeria. The adoption of instant pay transactions (IPT) has significantly facilitated swift business activities, and increased global integrations, all of the aforementioned contributed to financial inclusion in a positive way.

The findings also revealed that internet-based transactions have influenced financial inclusion in Nigeria. Similarly, mobile money transactions displayed a positive yet statistically significant correlation with financial inclusion in Nigeria. The ease of mobile money mechanisms have empowered those who reside in the remotest parts of the Nigeria and fostered financial inclusivity.

From the foregoing findings, the following recommendations were proposed:

The influence of instant pay, internet-based and mobile money transactions on Nigeria's financial inclusion necessitates action. The government, in conjunction with private entities,

would provide and at the same time strengthen digital infrastructure and mobile network connections to ensure reliable and convenient access to internet all over the country. Again, the expansion of internet-based transactions that is arguably increasing cyber-security threats calls for the enactment and application of cyber-security measures and public awareness campaigns to safeguard the Nigeria's digital financial infrastructures. Nigerian Fin-tech needs huge improvement and this improvement would be realized when there is a provision of an enabling and strong macroeconomic environment to attract a huge number of investors into the sector. Also, the formulation of measures by fiscal and monetary authorities to enhance infrastructural development will un-doubtedly bring down the number of people who were financially excluded.

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DIGITAL HUMAN RESOURCE MANAGEMENT AND EMPLOYEE PERFORMANCE IN SELECTED TERTIARY INSTITUTIONS IN NIGER STATE, NIGERIA

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Abstract

The rapid adoption of digital human resource management (HRM) tools in Nigerian tertiary institutions has created a gap between technologically enabled HR practices and the actual performance outcomes of academic staff. Despite the increasing investment in digital recruitment, training, and performance management, there is limited empirical evidence on how these digital HRM proxies influence employee productivity, job satisfaction, and overall institutional effectiveness in Niger State. This study examined the effect of digital human resource management on employee performance in some selected tertiary institutions in Niger State. Employees working at the selected tertiary institutions in Niger state comprise the research population. The research population consisted of 4636 employees. A sample of 368 employees was drawn using Taro Yamane (1976) sample size estimation. Stratified and simple random probability sampling technique was used in selecting the employees of these tertiary institutions. Multiple regression analysis was employed to analyze the information gathered from surveys. The results from the three hypotheses shows that digital recruitment, digital training and digital performance management (digital human resource management) have positive and significant effect on employee performance in some selected tertiary institutions in Niger State ($P = 0.000 < 0.05$). The study therefore, concludes that digital human resource management has significant effect on employee performance. It is recommended that management of tertiary institutions prioritize the adoption of integrated digital HRM tools to improve employee recruitment, training, and performance evaluation processes.

Keywords: Digital Human Resource Management, Digital Performance Management, Digital Recruitment, Digital Training, Employee Performance.

Introduction

Digital Human Resource Management (DHRM), specifically the integration of digital tools, automation, and information technology into core HR functions, has become essential for organizations seeking operational efficiency and competitive advantage (El Hajjaji, Benabdelhadi & Kabaili, 2021). DHRM encompasses digital recruitment, digital training, and digital performance management, among other practices (Halid, Yusoff & Somu, 2020). In the education sector, digitalization offers opportunities to streamline administrative tasks, enhance data-driven decision-making, and improve employee experiences (Ezeani & Akam, 2023). Employee performance, defined as the extent to which an individual's productivity meets organizational standards (Mohammed, 2020), has been shown to be significantly influenced by DHRM practices (Okoro, 2024; Haque & Nishat, 2022).

Despite the potential benefits, tertiary institutions in Niger State, Nigeria, continue to face persistent administrative challenges. These include delays and errors in staff payroll and pension processing, inadequate attendance tracking, inappropriate hiring and training practices, unstructured performance evaluation systems, and a lack of automated employee database profiles. All of these factors hinder timely promotions, rewards, and the efficient allocation of human and financial resources. While digital HR systems have been introduced in some institutions to replace manual, paper-based processes (Ganeshan & Vethirajan, 2023), the anticipated improvements in employee performance remain largely unverified.

A review of existing empirical studies reveals a growing body of evidence linking DHRM to employee performance. For instance, Al-kharabsheha et al. (2023) found that digital training and digital performance appraisal positively influence job performance through employee motivation. Haque and Nishat (2022) reported significant effects of various digital HR practices on both in-role and extra-role performance in the Bangladeshi garment industry. Similarly, Hussein and Jaaffar (2024) confirmed that e-HRM practices positively affect academic staff performance, with trust acting as a mediator, while Ganeshan and Vethirajan (2023) demonstrated a link between e-HRM and employee productivity. Ismail (2024) found strong positive correlations between e-HRM systems and job performance at Palestine Polytechnic University. Okoro (2024) concluded that digital recruitment and onboarding enhance employee development in the Nigerian banking sector. Tarelata (2024) also established a connection between electronic HR management and administrative effectiveness in Nigerian tertiary institutions.

However, critical gaps remain. First, no study has empirically examined the effect of DHRM (specifically digital recruitment, digital training, and digital performance management) on employee performance in tertiary institutions within Niger State, Nigeria. Second, existing studies employ inconsistent proxies for DHRM (for example, digital onboarding instead of digital performance management) and for employee performance (such as in-role or extra-role behavior, teaching or research performance, or productivity alone). This limits comparability and generalizability. Third, most prior research has focused on private sector organizations or institutions outside Nigeria, leaving a contextual gap in public higher education within a developing country setting.

To address these gaps, this study draws on the Technology Acceptance Model (TAM) proposed by Davis (1989). TAM posits that perceived usefulness and perceived ease of use determine users' attitudes toward and adoption of technology. This model provides a suitable theoretical lens for understanding how academic and administrative staff in Niger State tertiary institutions accept and utilize digital HR tools, and how such acceptance translates into performance outcomes.

The primary aim of this study is to examine the effect of digital human resource management on employee performance in selected tertiary institutions in Niger State, Nigeria. The specific objectives are as follows:

1. To examine the effect of digital recruitment on employee performance in selected tertiary institutions in Niger State;
2. To investigate the effect of digital training on employee performance in selected tertiary institutions in Niger State; and
3. To determine the effect of digital performance management on employee performance in selected tertiary institutions in Niger State.

Based on these objectives, the following null hypotheses were tested:

Ho1: Digital recruitment has no significant effect on employee performance in selected tertiary institutions in Niger State.

Ho2: Digital training has no significant effect on employee performance in selected tertiary institutions in Niger State.

Ho3: Digital performance management has no significant effect on employee performance in selected tertiary institutions in Niger State.

Literature Review

Conceptual Underpinnings

Digital Human Resource Management

Digital Human Resource Management (DHRM) refers to the application of information technology, internet-based platforms, and software applications to execute HR functions, including recruitment, training, performance evaluation, and compensation (Haque & Nishat, 2022). Al-kharabsheha, et al., (2023) describe digitalization of HRM as a technological process that converts analogue human resource data into digital formats for automated processing, thereby reducing manual errors and delays. Similarly, Ganeshan and Vethirajan (2023) define e-HRM as the integration of HR activities through hardware, software, and internet-based technologies to improve coordination and control. Collectively, these definitions emphasize a common theme: DHRM replaces paper-based, file-driven HR operations with digital systems that enhance accuracy, speed, and accessibility (Okoro, 2024). For the purpose of this study, DHRM is operationalized through three core dimensions: digital recruitment, digital training, and digital performance management.

Employee Performance

Employee performance is defined as the extent to which an individual's productivity and work outcomes align with organizational standards (Mohammed, 2020). It encompasses both the quantity and quality of work completed in accordance with assigned responsibilities (Farisi, 2022). While multiple dimensions of employee performance exist in the literature, this study adopts employee productivity as the primary measure. Employee productivity refers to the amount and caliber of work accomplished relative to the resources utilized (Ibietela, 2023). This focus is appropriate for tertiary institutions, where staff output directly affects institutional effectiveness, student outcomes, and operational efficiency.

Empirical Review

A substantial body of research has examined the relationship between DHRM and employee performance. However, as this review will demonstrate, existing studies suffer from three persistent weaknesses: inconsistent use of DHRM proxies, varying performance measures that limit comparability, and contextual constraints that restrict generalizability to tertiary institutions in Niger State, Nigeria.

Evidence from Diverse Contexts

Al-kharabsheha et al., (2023) investigated whether employee motivation mediates the relationship between digital HRM practices and work performance in industrial companies. Using a questionnaire survey, the authors found that digital training and digital performance appraisal each had significant positive effects on both employee motivation and job performance, with motivation acting as a partial

mediator. While methodologically sound, this study excluded digital recruitment from its analysis and focused on industrial rather than educational settings, limiting its applicability to tertiary institutions.

Haque and Nishat (2022) examined the impact of HRM digitalization on in-role and extra-role performance among workers in Bangladeshi ready-made garment (RMG) companies. Using SPSS to analyze survey responses, the study reported that certain digital HR practices, such as e-career management and e-compensation management, significantly influenced extra-role performance but had weaker effects on in-role performance. The study's strength lies in its comprehensive coverage of multiple digital HR practices. However, its manufacturing sector context and geographically distant location (Bangladesh) raise questions about transferability to Nigerian tertiary education.

In a study more directly relevant to higher education, Hussein and Jaaffar (2024) investigated how trust mediates the relationship between e-HRM and academic staff performance in Jordanian universities. Using Smart PLS to analyze 332 responses, the authors found that e-selection, e-training, and e-development positively affected academic performance, while e-recruitment and e-compensation showed insignificant effects. The study also confirmed that trust significantly mediated the e-HRM-performance relationship. Although this study shares an educational context with the current research, its geographic scope is limited to Jordan, and its performance measures (teaching and research performance) differ from the productivity focus adopted here.

Ganeshan and Vethirajan (2023) explored the relationship between e-HRM practices and employee productivity, arguing that HR software and technological solutions automate tasks previously performed manually. Their findings highlight the strategic importance of computerized HR practices in fostering efficient and adaptable organizational cultures. However, this study is largely conceptual and lacks primary empirical data, which limits the weight of its conclusions. Focusing on a single institution, Ismail (2024) examined the impact of e-HRM systems on job performance at Palestine Polytechnic University. Using a descriptive-analytical approach with 217 respondents, the study found a strong positive correlation between e-HRM adoption and employee performance. While the institutional focus provides depth, it restricts generalizability. Moreover, Ismail measured e-HRM as a unitary construct rather than examining its component dimensions, leaving unanswered questions about which specific practices drive performance.

Within the Nigerian context, Okoro (2024) investigated digital HR practices and employee development in the banking industry. The study embraced digital recruitment and digital onboarding as dimensions of DHRM and found positive relationships with employee development outcomes. Although this research provides valuable evidence from Nigeria, its banking sector focus differs substantially from tertiary education, and it used onboarding rather than performance management as a DHRM proxy.

Most relevant to this study's geographic context, Tarelate (2024) examined electronic human resource management and administrative effectiveness of tertiary institution leaders in South-South Nigeria. The study found positive connections between HR information systems and administrative effectiveness across time management, financial efficiency, and personnel administration. Nevertheless, the study focused exclusively on institutional leaders (administrative heads) rather than all employees, and it did not examine employee productivity as an outcome.

Synthesis of Methodological Weaknesses

The preceding review reveals three interconnected gaps that justify the current study. First, proxy inconsistency represents a significant barrier to cumulative knowledge. Al-kharabsheha et al., (2023) excluded recruitment; Okoro (2024) used onboarding instead of performance management; Hussein and Jaaffar (2024) found e-recruitment insignificant but still included it. No single study has simultaneously examined digital recruitment, digital training, and digital performance management within a unified framework applied to tertiary education.

Second, measurement divergence complicates cross-study comparison. Employee performance has been operationalized as in-role and extra-role behavior (Haque & Nishat, 2022), teaching and research performance (Hussein & Jaaffar, 2024), productivity and efficiency (Ganeshan & Vethirajan, 2023), and general job performance (Ismail, 2024). This variability makes it difficult to synthesize findings or establish consensus.

Third, contextual limitations constrain external validity. Most existing studies were conducted outside Nigeria (Bangladesh, Jordan, Palestine) or within Nigerian non-education sectors (banking). The only tertiary education study in Nigeria (Tarelate, 2024) focused on South-South region and on administrative heads only, not general employee performance. Consequently, no empirical evidence exists on how digital recruitment, training, and performance management affect employee productivity in tertiary institutions within Niger State, Nigeria.

Theoretical Framework

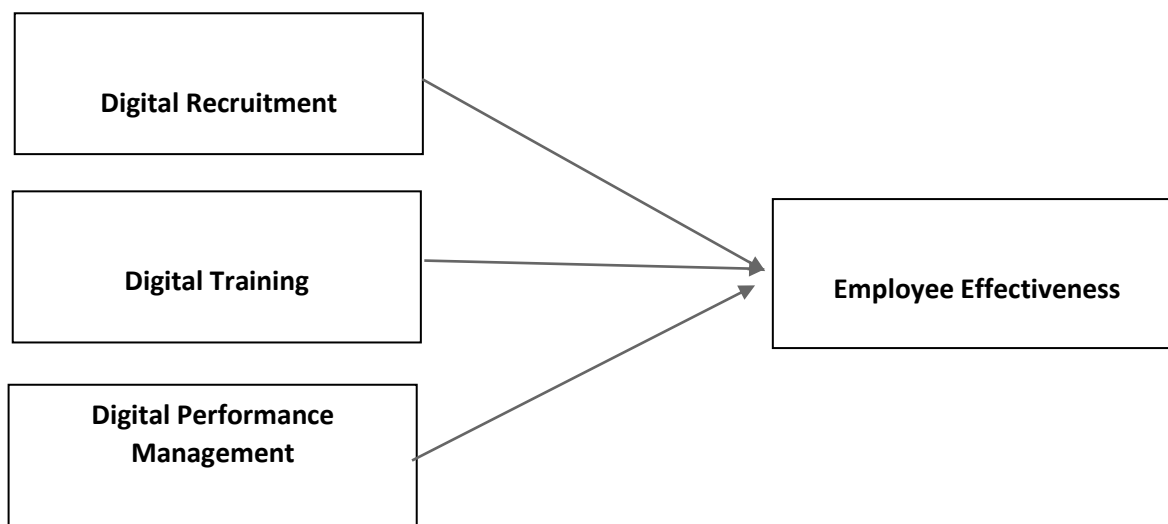
This study is anchored on the Technology Acceptance Model (TAM) developed by Davis (1989). TAM explains technology adoption as a function of two primary beliefs: perceived usefulness (the degree to which a person believes that using a technology would enhance their job performance) and perceived ease of use (the degree to which a person believes that using the technology would be effort-free) (Venkatesh & Davis, 2000). These beliefs shape users' attitudes toward technology, which subsequently influence behavioral intentions and actual usage. TAM assumes that individuals make rational assessments of technology's costs and benefits before adoption (Legris, Ingham, & Collette, 2003).

TAM is particularly appropriate for this study for three reasons. First, the adoption of digital HR tools in tertiary institutions requires behavioral change from academic and administrative staff, making TAM's focus on individual acceptance decisions directly relevant. Second, TAM has been extensively validated in educational technology contexts (Maican, et al., 2019), providing a solid empirical foundation. Third, TAM's parsimony allows focused testing of the relationship between perceived technology attributes (usefulness and ease of use) and performance outcomes, without introducing extraneous variables.

Conceptual Model

Based on the theoretical framework and empirical review, Figure 2.1 presents the conceptual model guiding this study. The model proposes that three dimensions of DHRM (digital recruitment, digital training, and digital performance management) influence employee performance, measured as employee productivity.

Figure 2.1: Conceptual Model



Source: Researcher's Compilation (2025)

The model posits three pathways. First, digital recruitment enhances employee performance by attracting qualified candidates, reducing time-to-hire, and improving person-job fit. Second, digital training improves employee performance by equipping staff with relevant skills through accessible, self-paced learning platforms. Third, digital performance management boosts employee performance by enabling real-time feedback, transparent goal tracking, and data-driven development planning. Together, these pathways constitute the mechanism through which DHRM translates into improved employee productivity in tertiary institutions.

Materials and Method

Research Design, Population and Sampling

This study adopted a descriptive and quantitative research approach using a cross-sectional survey design. The quantitative data obtained through the survey design were analyzed using descriptive and inferential statistics. The cross-sectional design was appropriate as it allowed data collection at a single point in time, enabling the examination of relationships between digital human resource management dimensions and employee performance without manipulating variables. The research population consisted of all academic and administrative staff members from four tertiary institutions in Niger State, Nigeria. These four institutions were purposively selected to represent the diversity of institutional types in the state: one state polytechnic (Niger State Polytechnic, Zungeru), one state college of education (Niger State College of Education, Minna), one federal polytechnic (Federal Polytechnic, Bida), and one federal university (Federal University of Technology, Minna). This selection strategy ensured representation across governance structures (state vs. federal) and institutional missions (polytechnic, college of education, university), thereby reducing selection bias compared to relying solely on institutional willingness to participate. According to the human resources department of these institutions, the total staff population was 4,636 employees.

The sample size was determined using the Taro Yamane (1967) formula. The calculated sample size was therefore 368 employees. Table 3.1 presents the population and sample size distribution across the four institutions.

Table 1: Population and Sample Size

Tertiary Institutions	Population	Sample Size
Niger State Polytechnic Zungeru	726	58
Niger State College of Education, Minna	681	54
Federal Polytechnic, Bida	1787	142
Federal University of Technology, Minna	1442	114
Total	4636	368

Source: Human Resource Department of the Selected Tertiary Institutions, 2024

A stratified and simple random sampling technique was employed. First, the population was stratified by institution to ensure proportional representation from each of the four tertiary institutions. Second, within each stratum (institution), simple random sampling was used to select individual employees. This approach ensured that all staff members had an equal chance of being selected, thereby enhancing the representativeness of the sample.

The primary data collection instrument was a structured questionnaire administered in person. Section A captured respondents' biodata (gender, age, qualification, experience, and institution). Section B measured the study variables using a 5-point Likert scale (1 = Strongly Disagree to 5 = Strongly Agree). The independent variable, digital human resource management, was proxied by three components from Oyoru (2023): digital recruitment (6 items), digital training (5 items), and digital performance management (5 items). The dependent variable, employee performance, was derived from Josphat, Abel and Nancy (2021) and proxied by employee productivity (5 items).

To establish content validity, three experts in HRM and research methodology reviewed the questionnaire. Each item was rated for relevance on a 4-point scale. The Content Validity Index (CVI) was 0.89, exceeding the acceptable threshold of 0.78 (Polit & Beck, 2006). The supervisor also assessed face validity to ensure clarity and appropriateness.

A pilot study was conducted with 35 employees not included in the final sample. Internal consistency was assessed using Cronbach's alpha. As shown in Table 3.2, all constructs exceeded the acceptable threshold of 0.70 (Creswell, 2003), indicating satisfactory reliability.

Table 2: Reliability Test

Variables	Number of Items	Reliability Scale
Digital Recruitment	6	0.772
Digital Training	5	0.713
Digital Performance Management	5	0.764
Employee Performance	5	0.811

Source: Researcher's Computation, 2025

Questionnaires were distributed by hand during working hours. The researcher remained on-site to provide clarification and collect completed questionnaires immediately.

Of 368 questionnaires distributed, 345 were fully completed (93.8% response rate). To assess non-response bias, early respondents (n = 172) were compared with late respondents (n = 173) on gender, age, and institution. No significant differences were found ($p > 0.05$), suggesting non-response bias is unlikely (Armstrong & Overton, 1977).

Ethical approval was obtained from the Research Ethics Committee of Niger State Polytechnic, Zungeru (NSPZ/REC/2025/042). Written permission was secured from each institution. All participants provided written informed consent, were assured of anonymity and confidentiality, and were informed of their right to withdraw without penalty. No incentives were offered.

The collected data were analyzed using quantitative data analysis techniques. Descriptive statistics (frequency tables, percentages, means, and standard deviations) were used to summarize respondents' demographic characteristics and the central tendencies of the study variables. Inferential statistics, specifically correlation analysis and multiple regression analysis, were employed to test the research hypotheses.

Data from the questionnaires were coded and entered into the Statistical Package for Social Sciences (SPSS Version 23). Pearson correlation coefficients were computed to examine the bivariate relationships between each independent variable and employee performance. Multiple regression analysis was then conducted to determine the combined and individual effects of the three DHRM dimensions on employee performance.

The regression model, adapted from Ismail (2024), is specified as follows:

$$Y = \beta_0 + \beta_1 DR_i + \beta_2 DT_i + \beta_3 DPM_i + \varepsilon_i$$

Where:

Y = Employee Performance

DR = Digital Recruitment

DT = Digital Training

DPM = Digital Performance Management

β = Constant

ε = Error Term

The significance level for hypothesis testing was set at $p < 0.05$. Prior to regression analysis, diagnostic tests for multicollinearity (Variance Inflation Factor) and normality (skewness and kurtosis) were conducted to ensure that the assumptions of multiple regression were satisfied.

Results and Discussion

Out of 368 questionnaires distributed, 345 were properly filled and returned, representing a 93.8% response rate.

Skewness and kurtosis were used to assess normality. According to Hair et al. (2010), data are normally distributed if skewness is between -2 and +2 and kurtosis between -7 and +7. Table 4.1 confirms that all variables meet these criteria.

Table 3: Normality Test

Variables	Skewness	Kurtosis	Decision
Digital Recruitment (DR)	-0.293	0.612	Normal
Digital Training (DT)	0.093	-0.791	Normal
Digital Performance Management (DPM)	-0.647	0.153	Normal
Employee Performance (EP)	-0.479	-0.607	Normal

Source: Researcher's Computation, 2025

Correlation Analysis

Table 4 presents the Pearson correlation matrix.

Table 4:		Correlations			
		DR	DT	DC	EP
DR	Pearson	1	.283**	.543**	.360
	Correlation				
	Sig. (2-tailed)		.000	.007	.261
	N	345	345	345	345
DT	Pearson	.283**	1	.651**	.535**
	Correlation				
	Sig. (2-tailed)	.000		.000	.000
	N	345	345	345	345
DPM	Pearson	.543**	.651**	1	.619**
	Correlation				
	Sig. (2-tailed)	.007	.000		.000
	N	345	345	345	345
EP	Pearson	.360	.535**	.619**	1
	Correlation				
	Sig. (2-tailed)	.000	.000	.000	
	N	345	345	345	345

** . Correlation is significant at the 0.01 level (2-tailed).

Source: Researcher's Computation, 2025

All three DHRM dimensions have positive and significant correlations with employee performance ($p < 0.01$). Digital performance management has the strongest correlation ($r = 0.619$), followed by digital training ($r = 0.535$) and digital recruitment ($r = 0.360$).

Test of Hypotheses

Multiple regression analysis was conducted to test the three null hypotheses.

Regression Diagnostics

Multicollinearity: As shown in Table 4, all VIF values are below 4.1 and tolerance values exceed 0.1, indicating acceptable levels (Hair et al., 2014). However, tolerance for DT (0.250) and DPM (0.266) suggests moderate shared variance.

Autocorrelation: The Durbin-Watson statistic was 0.236, below the acceptable range of 1.5–2.5, indicating positive autocorrelation. Results should be interpreted with caution.

Table 5: Model Summary

Table 5: Model Summary ^b					
Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	Durbin-Watson
1	.631 ^a	.566	.565	1.466	.236

a. Predictors: (Constant), DPM, DR, DT

Source: Researcher's Computation, 2025

The R value of 0.631 indicates a moderate positive relationship. R Square (0.398) shows that 39.8% of variance in employee performance is explained by the three DHRM dimensions.

ANOVA

Table 6: ANOVA ^a						
Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	4879.996	3	1626.665	756.598	.000 ^b
	Residual	754.641	341	2.150		
	Total	5634.637	344			

a. Dependent Variable: EP

b. Predictors: (Constant), DPM, DR, DT

Source: Researcher's Computation, 2025

The F value of 756.598 and P value of 0.000 in Table 6 demonstrate that the model is statistically significant. Changes in the independent variables of digital training, digital performance management, and digital recruiting may therefore reliably anticipate changes in the dependent variable of employee performance.

Table 7 Regression Coefficients

Table 7: Coefficients ^a									
Model		Unstandardized Coefficients		Standardized Coefficients Beta	T	Sig.	95.0% Confidence Interval for B		Collinearity Statistics
		B	Std. Error				Lower Bound	Upper Bound	Tolerance VIF
1	(Constant)	-4.734	.743		-6.367	.000	-6.196	-3.272	
	DR	.142	.025	.116	5.587	.000	.092	.192	.885

D	.277	.041	.262	6.713	.000	.196	.358	.250	4.0
T									03
DP	.810	.043	.712	18.795	.000	.726	.895	.266	3.7
M									60

a. Dependent Variable: EP

Source: Researcher's Computation, 2025

The regression equation is:

$$EP = -4.734 + 0.142(DR) + 0.277(DT) + 0.810(DPM)$$

Hypothesis Testing Results

Hypothesis	Finding	Decision
Ho1: DR has no significant effect on EP	$\beta = 0.142$, $t = 5.587$, $p = 0.000$	Rejected
Ho2: DT has no significant effect on EP	$\beta = 0.277$, $t = 6.713$, $p = 0.000$	Rejected
Ho3: DPM has no significant effect on EP	$\beta = 0.810$, $t = 18.795$, $p = 0.000$	Rejected

Interpretation: Digital performance management has the strongest effect on employee performance ($\beta = 0.810$), followed by digital training ($\beta = 0.277$) and digital recruitment ($\beta = 0.142$). All three variables have statistically significant positive effects on employee performance since their p-values are less than 0.05, leading to the rejection of all null hypotheses.

Discussion of Findings

Digital Recruitment and Employee Performance

The significant positive effect of digital recruitment ($\beta = 0.142$) aligns with the Technology Acceptance Model (Davis, 1989): when employees perceive digital recruitment platforms as useful and easy to use, acceptance increases. This finding supports Okoro (2024) but contradicts Hussein and Jaaffar (2024), who found e-recruitment insignificant in Jordanian universities. This discrepancy may reflect contextual differences, as Nigerian institutions may be at an earlier digital adoption stage.

Digital Training and Employee Performance

Digital training showed a significant positive effect ($\beta = 0.277$), consistent with TAM. This supports Al-kharabsheha et al. (2023) and Hussein and Jaaffar (2024), confirming that digital training enhances performance through improved skills and motivation.

Digital Performance Management and Employee Performance

Digital performance management had the strongest effect ($\beta = 0.810$), strongly supporting TAM. Real-time feedback and transparent goal tracking, when perceived as useful and easy to use, lead to substantial performance gains. This aligns with Al-kharabsheha et al. (2023). The exceptionally strong coefficient may reflect the particularly poor state of manual performance management systems in Niger State institutions prior to digitalization.

Theoretical Implications

The findings support the applicability of TAM to digital HRM in Nigerian tertiary institutions. However, the strong intercorrelation between digital training and performance management ($r = 0.651$) suggests these practices may be implemented together, highlighting the importance of integrated DHRM strategies.

Conclusion and Recommendations

This study examined the effect of digital human resource management (digital recruitment, digital training, and digital performance management) on employee performance in selected tertiary institutions in Niger State, Nigeria. The correlation analysis revealed that all three DHRM dimensions have significant positive relationships with employee performance. The regression results rejected all

three null hypotheses, confirming that digital recruitment ($\beta = 0.142$, $p < 0.001$), digital training ($\beta = 0.277$, $p < 0.001$), and digital performance management ($\beta = 0.810$, $p < 0.001$) have significant positive effects on employee performance. The study therefore concludes that digital human resource management has a significant positive effect on employee performance in selected tertiary institutions in Niger State. Among the three dimensions, digital performance management contributes most strongly to employee performance, followed by digital training and digital recruitment.

Recommendations

Based on the findings of this study, several recommendations are offered.

1. The management of tertiary institutions in Niger State should prioritize the adoption of digital performance management systems. This dimension showed the strongest effect on employee performance ($\beta = 0.810$), indicating the greatest potential to transform employee outcomes. Institutions should invest in platforms that enable real-time feedback, automated goal tracking, and transparent performance metrics to address current challenges of unprogrammed employee evaluation systems and delayed promotions.
2. Institutions should develop structured digital training ecosystems. The significant effect of digital training ($\beta = 0.277$) suggests that investment in learning management systems, virtual workshops, and digital skill development programs will yield measurable performance improvements. Training content should be relevant to employees' specific job roles and career progression pathways.
3. Institutions should strengthen their digital recruitment platforms. Although this dimension had the smallest effect ($\beta = 0.142$), it remains a valuable component of a comprehensive DHRM strategy. Institutions should move beyond basic online vacancy postings to include structured online applications, digital screening tools, and centralized applicant databases.
4. Given the strong intercorrelation between digital training and digital performance management ($r = 0.651$), institutions should integrate these systems rather than implementing them separately. An integrated platform combining training modules with performance management features will maximize synergies and improve cost-effectiveness.

Limitations and Suggestions for Further Research

Several limitations should be considered when interpreting the findings. Methodologically, the cross-sectional design precludes causal inferences, as data were collected at a single point in time. Future research should employ longitudinal designs to establish causality more rigorously. The reliance on self-report measures from the same respondents may inflate relationships due to common method bias. Future studies should incorporate objective performance data, such as publication counts or administrative efficiency metrics, or use multiple raters such as supervisor evaluations. The Durbin-Watson statistic of 0.236 indicated positive autocorrelation, violating the independence of errors assumption. Future research should collect data with greater temporal spacing between measurements. The sample of 345 employees from four institutions in Niger State may not be representative of all tertiary institutions in the state or country.

Conceptually, the study examined only three DHRM dimensions (recruitment, training, and performance management). Future research should include additional dimensions such as digital compensation, digital onboarding, and digital employee engagement. Employee performance was measured only through productivity; future research should incorporate multiple dimensions including effectiveness, efficiency, and quality of work.

Finally, future research should replicate the study in other Nigerian states to increase generalizability, control for variables such as organizational culture and employee digital literacy, and employ mixed methods to provide deeper insights into how and why DHRM affects employee performance.

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INNOVATIVENESS AND PERFORMANCE OF WOMEN ENTREPRENEURS IN NIGERIA: MODERATING ROLE OF PERCEIVED FEASIBILITY

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Abstract

This study aimed at examining the Moderating Role of Perceived Feasibility on Innovativeness and Performance of Women Entrepreneurs in Nigeria. The study attempted to come up with the mediation conceptual framework of the study on the Moderating Role of Perceived Feasibility on Innovativeness and Performance of Women Entrepreneurs in Nigeria. The study was conducted on a basis of thorough literature review methodology. The study drew conclusion that, there is positive and significant correlation between Innovativeness and performance of women in entrepreneurship through adequate perceived feasibility in Nigeria. In addition, innovativeness is explored as a result of trends in product streamlining and the kind of motivated and zealous personnel- not specificity of gender-who can fully devote themselves for the progress of the organization.

Keywords: Innovativeness; Perceived Feasibility; Performance; Women Entrepreneurs.

Introduction

Performance and activities of women entrepreneurs is something that has been drawing the attention of researchers especially when it comes to setting up micro and/or small enterprises. Extensive evidence reveals that the performance of women-owned micro and small enterprises played a vital role for the development of a nation (Shakeel, Yaokuang, and Gohar, 2020) and the well-being of societies by creating jobs, wealth, and innovations (Mozumdar, Van Der Velde, and Omta, 2020). Despite this, both the growth and development in terms of performance of women-owned businesses remain a concern, although women entrepreneurship has gained popularity in the country with a growing number of women to start and run their own business (Awoke, 2019). This clearly exonerates the role and significance of the performance of women entrepreneurs as a topic of argument between policy makers and also academicians in gaining insight on its frequent contributions towards entrepreneurial development.

However, performance seems to be conceptualized, operationalized and measured in different ways, thus making cross-comparison difficult (Adamu, Usman, and Bala, 2024). According to Tekele (2019), the model of individual job performance shows that performance depends on aptitude, drive, and opportunity. Organizational effectiveness is attained when new things

are created by teaming personnel squad which consists of both gender parts that are zealous of moving the image of the organization forward; and yet, it is evaluated based on how each management level performs his given tasks accordingly. Furthermore, there are four different measures of comparative performance of business by gender, that is, primary performance measures (number of employees, growth in employees, sales turnover, value of capital assets); proxy performance measures (Geographical range of markets; VAT Registration); subjective measures (including the ability of the business to meet business and domestic needs); and entrepreneurial performance measures (the desire for growth, the ownership of multiple businesses) as posited by Adamu, et al. (2024). Amongst the most frequently used measures of performance are annual sales, number of employees, return on sales, growth in sales, and growth in employee numbers (Adetoyinbo, 2021). However, in underdeveloped states like Nigeria, women are not fond of involving themselves into activities including taking responsibilities of the household that can bring them internal generated wealth that can sustain children's education, health, shelter, food and other things that can augment the effort of their husbands; on one hand, women in countries like China and England, women partake in activities that give them income which grants them opportunity to take care of their families' needs as well as boosting and enlarging the level economic development of their country. Although, some of them have the zeal to do it, but are challenged by lack of continuous perceived feasibility, which is one of the serious issues that negatively affect their participation into various entrepreneurial endeavors.

In Nigeria, with women constituting more than 50% of the population, about 32.9% of enterprises registered are owned by women (International Labour Organization, 2022). In every 10 working age females, four out of these 10 indulge in early-stage entrepreneurial activity, and make up about 40.7% with respect to 39% of their male counterparts (Nasimiyu, 2019). It is also released by the same (International Labour Organization, 2022), that in Nigeria, female entrepreneurs accounted for about 41% of those that own micro businesses. This has clearly underscores the commitment and dedication mount by Nigerian women entrepreneurs in boosting the economic improvement and economic development of the country especially if such is compared with male counterpart. Similarly, some of the identified factors that limit increased business development of female entrepreneurs in Nigeria are poor culture of savings, wrong business practice, inadequate qualified artisan workers, very few honest and reliable staff, achieving a balance between family and enterprise, and rise in thinking among females and fear of pseudo growth (Lawan, 2017).

In the same vein, prior studies such as: (Zeb and Ihsan, 2021; Huang, Li, Wang, and Li, 2022; Mozumdar, Materia and Hagelaar, 2022; and, Loan, Brahmi, 2023) have been conducted on the nexus between innovativeness and performance of women entrepreneurs. All these studies have contributed towards enlarging the body of knowledge; however, little or few studies were carried out on moderating role of perceived feasibility on the nexus between innovativeness and performance of women entrepreneurs in Nigeria, and so there is need to bridge this gap by introducing a research on the role of perceived feasibility on innovativeness and performance of women entrepreneurs in Nigeria which this work is based upon.

Literature Review

Performance of Women Entrepreneurs

Performance among women entrepreneurs is regarded as one of the major drivers of global economy today. It has been defined as enterprise ability to survive, grow, provide

employment and reduce poverty among Nigerians (Aminu, 2021). This has become a serious challenge that compels or motivates businesses to shift from traditional mode of operation to a modern phase of innovativeness (Ilyasu et al., 2025). Successful entrepreneurs have features and personality traits such as quick investment decision-making and exploiting opportunities which Viinikainen et al., (2017) asserted that there should be comparison due to the high market uncertainty. Their study identified that there are basically three main personality traits and uniqueness of successful entrepreneurs motivation, perceived feasibility and risk-taking. In the same vein, gender bias has been a challenge against some women especially in practising entrepreneurship today.

Adamu, Usman, and Bala (2024) posited that there are researchers who assert that psychological and cognitive factors, motivation (desire for fulfillment, need for achievement, and progress and autonomy, etc.) and other personal subjective perceptive targets (self-confidence, recognition of business opportunity, risk tolerance, etc.) all bring to bear in the entrepreneurship profession.

Thus, previous researches have examined how top female entrepreneurs who possess entrepreneurial intention, managerial skills, and high motivation have been able to achieve business success easier (Al Mamun and Ekpe, 2016). They found that motivation behavior not only supports the managers but also plays an important role as the pillar for achieving their entrepreneurial objectives. Some empirical evidence has also shown that women entrepreneurs have significant impact on business success, especially in those firms that require such unique individual attributes (Ehman et al., 2017), hence, perceived feasibility, endurance, motivation and ability of risk-taking influence those entrepreneurial orientations at the early stage influences personal characteristics. They further asserted that women chief executive officers (CEOs) could take the risk precariously, that might significantly affect firm's performance and success, not necessarily because entrepreneurs are highly inclined to take risks might receive compensation through higher expected profits (Adamu et al., 2024). Furthermore, performance is viewed by this study as a personal devotion towards the prosperity of a particular business organization. In line with this, performance is determined by motivation, perceived feasibility so also risk-taking from the side of entrepreneur.

Innovativeness

Innovativeness is understood as the willingness to support creativity and experimentation in introducing new products, novelty, and technological leadership in developing new processes (Moss et al., 2018). This assertion has underpinned creativity and willingness to experiment technological system for the development of new products (Wales, 2019). Innovativeness is seen as a process while innovation is the result or end product of the process (Moss et al., 2018). Scholars such as Aminu, 2021; Putra, et al., 2020) have supported proposition that SMEs that engage in innovation activities perform better than those who do not. Several studies have been conducted to assess conducted in order to examine the relationship between innovativeness and MSMEs performance in different countries. Rodríguez-García et al., (2020) reported positive relationship between innovativeness and firm's growth in terms of sales, assets and employment. Tzeng et al., (2020) established positive relationship between innovativeness and performance among Taiwanese small-scale enterprises (SSEs) in China. Čater (2019) also reported positive impact of innovativeness on firms' performance.

However, Hughes and Morgan (2007) reported positive relationship between innovativeness and product performance but not performance. Idowu (2013) did not find any relationship

between innovativeness and firms' performance in Nigeria. However, since innovation is derived from innovativeness and innovation promotes new products/processes, which may result in increased customer patronage and loyalty; It becomes reasonable to believe that innovativeness would have a positive relationship with Firms performance. Thus, this study explores insight on the moderating role of perceived feasibility on the nexus between innovativeness and performance of women entrepreneurs in Nigeria with the zeal to conceptualize a framework that would broaden the sphere of motivating women entrepreneurs in the present day Nigeria.

Perceived Feasibility

Perceived feasibility in entrepreneurship refers to the entrepreneur's assessment of the practicality and likelihood of success of a business idea or venture (Haruna and Muhammad, 2024). They stressed out that perceived feasibility deals with critical investigating and finding out possible determinants that can improve entrepreneurial activities especially among successful women entrepreneurs, these determinants are, for example, market demand, competition, financial resources, and technical feasibility. According to, Shane and Venkataraman (2000) defined perceived feasibility as the extent to which an individual believes that a particular domain is real and attainable. Perceived feasibility is a crucial aspect of entrepreneurship as it shapes the entrepreneur's willingness to invest time, resources, and effort into a venture based on their belief in its viability (Haruna and Muhammad, 2024). For the purpose of this present study, perceived feasibility has to do with the ability of women entrepreneurs in critical evaluating the positive outcome of a particular ideation or a business venture.

Proposed Conceptual Framework

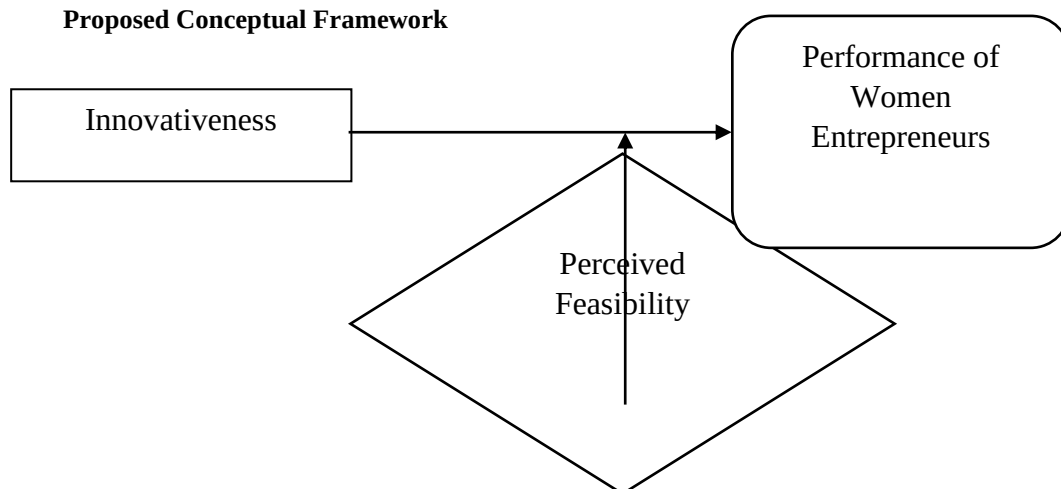


Figure 1: Conceptual Framework of the present study

Proposed Hypotheses of the Study

This study proposed the following statements as its proposed hypotheses as follows:

H₁: Innovativeness has significant relationship with performance of women entrepreneurs in Nigeria

H₂: Perceived Feasibility has moderating effect on the significant relationship between innovativeness and performance of women entrepreneurs in Nigeria

Theoretical Underpinning

This present study is based on the theory of innovation which was proposed by Alois Joseph Schumpeter, who propounded the theory of innovation and is regarded as one of the greatest economists of the first half of the twentieth century (Sledzik, 2013, and Hanush and Pyka 2007). Schumpeter viewed innovativeness along with learning as the main catalysts of successful entrepreneurship. He believed that that creativity was necessary if an entrepreneur was to enhance the performance in a highly competitive environment (Edison, Bin Ali, and Torkar, 2013). Even though, in the late 1880s according to (Clemence, 2009) there have been reports of the use of term “innovation” as to mean something unusual, (Burton-Jones, 1999), but none of the first precursors of innovation have been so influent as the Schumpeters’ view on the matter. This theory provides a theoretical foundation for addressing performance from innovative perspective. The theory assumed that, if the service is accurately modified, it will improve the performance of providers. Schumpeter described performance as a systematic process of developmental changes, substantially driven by innovation which was divided by him into five categories; those are, launching a new product or service or new kinds of already existing products/services, modification of new methods of production or sales of a product/service (not yet proven in the industry), establishment of new market (the market of which a branch of the industry was not yet in existence), acquiring of new source of supply of raw materials or semi-finished goods and lastly, new industry structure such as creation or destruction of a monopoly position. Schumpeter argued that anyone seeking profits must innovate (Hanush and Pyka, 2007).

According to this theory, it believes that innovativeness is an essential driver of competitiveness and economic dynamics (Porter and Stern, 1999). Schumpeter believed that innovation is the centre of economic change causing gales of “creative destruction”, which a term is created by Schumpeter in capitalism, socialism and democracy (Nancy and Ralph, 2018). According to Schumpeter, innovation is a “process of industrial transformation that incessantly revolutionized the economic structure from within, incessantly destroying the old one, incessantly creating a new one”. Service providers are among the drivers of competitiveness through its service contribution. Vargas-Hernandez (2013) Schumpeter described performance as systematic process of structural change, substantially driven by innovation. However, the study demonstrated how Schumpeter divided the innovation process into four dimensions; these include invention, innovation, diffusion and imitation. The theory has not been escaped from criticisms by some reputable scholars (Hanush and Pyka, 2007; Borton-Jones, 1999; Edison, Bin Ali, and Torkar, 2013).

Conclusion & Recommendations

In conclusion, Innovativeness was documented, and so it is proven that it has significant effect on the performance of women entrepreneur in Nigeria. These finding are in line with the study of Rodríguez-García et al., (2020) and Tzeng et al. (2020) which established that there has been a positive relationship between innovativeness and performance among Taiwanese small-scale enterprises (SSEs) in China. As revealed by the authors, that there is positive relationship between innovativeness and firm's growth in terms of sales, assets and employment. Similarly, the findings of this study also support the study of (Wales, 2019) which indicated that innovation had a little significant effect on SMEs performance. The findings, is therefore, in concord with the earlier study of Čater (2019). Firms 'innovativeness is reflected in the frequency of changes in product lines and investment in both human and material resources committed to innovation activities.

Recommendations

This present study has focused solely on women entrepreneurs that might awaken them in engaging in many entrepreneurial activities, therefore, government and other stakeholders in business organizations should give women entrepreneurs adequate motivation and full participation and support so that we can have woe of women entrepreneurs in Nigeria in some few years to come. Similarly, this study limits its boundary on examining the moderating role of perceived feasibility on the nexus between innovativeness and performance of women entrepreneurs but in Nigeria alone; nonetheless, further studies should incorporate mediating factors to widen up the body of literature from gap left over by this study.

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SOCIO-CULTURAL INFLUENCES ON THE PERFORMANCE OF WOMEN-OWNED ENTERPRISES IN NORTHERN NIGERIA: A CONCEPTUAL PAPER ON THE ROLE OF ENTREPRENEURIAL MINDSET

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Abstract

Women-owned enterprise performance in Northern Nigeria varies considerably despite shared socio-cultural constraints. Existing research emphasizes structural limitations but offers limited explanation for why some women navigate restrictive environments more successfully than others. This paper develops a conceptual framework examining how entrepreneurial mindset, conceptualized as an integrated cognitive capability, moderates the relationship between socio-cultural influences (culture, religion, family support, and social support) and enterprise performance. Drawing on informal institutional theory, cognitive appraisal theory, and household bargaining perspectives, the study advances propositions specifying both direct and conditional effects. The framework identifies four cognitive mechanisms, namely reinterpretation, selective compliance, strategic avoidance, and identity negotiation, through which entrepreneurial mindset conditions institutional pressures. By theorizing Northern Nigeria's institutional architecture as causally modifying how socio-cultural forces operate, the model provides a mechanism-based explanation for performance heterogeneity. The study contributes to scholarship on women entrepreneurship, entrepreneurial cognition, and emerging market business environments while offering actionable guidance for interventions that combine structural support with cognitive skill-building.

Keywords: Cognitive Mechanisms, Entrepreneurial Mindset, Informal Institutions, Socio-Cultural Influences, Women-Owned Enterprises

Introduction

Women-owned enterprise performance in Northern Nigeria remains uneven, even though more women are participating in micro and small-scale business activity. Across Sub-Saharan Africa, women account for a large share of early-stage entrepreneurial activity, yet clear gaps persist in growth, profitability, and formalization (Global Entrepreneurship Monitor, 2024). These differences are especially visible in Northern Nigeria, where socio-cultural structures strongly shape women's economic engagement (Markovic & Botha, 2024; Osuntade et al., 2026). The central question is straightforward: if women operate under broadly similar social and institutional conditions, why do their business outcomes differ so significantly?

Research consistently shows that socio-cultural norms influence access to capital, legitimacy, mobility, and growth ambition among women entrepreneurs. However, much of the literature

treats culture, religion, and kinship systems as largely deterministic constraints (Mesa-Toro, 2026). Institutional theory explains how informal rules define acceptable economic behavior (North, 1990), but evidence from emerging markets demonstrates that entrepreneurs embedded in comparable environments often perform very differently (Du et al., 2021; Sutter et al., 2021). If informal institutions fully determined outcomes, we would expect performance patterns to converge. They do not. This suggests that institutional effects are filtered rather than automatically imposed.

Structural explanations therefore capture only part of the story. Socio-cultural forces, including culture, religion, family support structures, and social networks, shape opportunity recognition and strategic choice (Bruton et al., 2021). Yet they do not operate uniformly. Even within conservative communities marked by similar patriarchal norms, some women build scalable ventures while others remain at subsistence levels. The divergence indicates that individual-level processes matter. What differs is not only the structure surrounding entrepreneurs but how they interpret and respond to it.

This paper positions entrepreneurial mindset as that conditioning mechanism and conceptualizes it as a unidimensional cognitive orientation. Rather than separating opportunity alertness, adaptability, and self-efficacy into independent components, the study treats them as intertwined expressions of a coherent way of thinking about entrepreneurial action. Within this unified mindset, opportunity recognition helps identify viable niches in constrained settings, adaptability supports strategic adjustment in response to institutional pressures, and self-efficacy sustains persistence despite social resistance (Mitchell et al., 2002; Shrivastav & Rao, 2025; Shepherd et al., 2022). Cognitive appraisal theory helps explain why this matters. Individuals interpret the same external conditions differently depending on how much control and competence they perceive (Shepherd et al., 2022). In Northern Nigeria, socio-cultural norms do not produce uniform performance outcomes because their impact depends on how entrepreneurs cognitively appraise and manage them.

Framing entrepreneurial mindset as a moderator moves the conversation beyond structural determinism and toward structured agency acknowledging that while institutions constrain, entrepreneurs still exercise meaningful choice (McMullen et al., 2021). Institutions remain powerful, but their influence is conditional. The paper contributes to three conversations: advancing research on socio-cultural determinants by moving beyond direct-effect explanations (Abumuamar & Reinecke, 2025); strengthening entrepreneurial mindset scholarship by situating the construct within lived institutional realities (Obschonka & Audretsch, 2024); and deepening emerging market research by showing how Northern Nigeria's institutional architecture actively conditions the interaction between social norms and individual cognition (Welter, 2011; Boso et al., 2025).

Statement of the Problem

The central problem addressed in this paper is the persistent and unexplained heterogeneity in women-owned enterprise performance across Northern Nigeria, despite women operating under broadly similar socio-cultural and institutional conditions. While extensive documentation exists regarding the restrictive effects of patriarchal norms, religious expectations, kinship obligations, and mobility constraints on women entrepreneurs in this region, existing scholarship has devoted insufficient attention to why similarly embedded women achieve different performance outcomes. Much of the literature treats culture, religion, and kinship systems as largely deterministic constraints, implying that performance

should converge under comparable institutional pressures. Empirical evidence, however, shows that performance divergence is the norm rather than the exception.

This gap between theoretical expectation and observed reality constitutes the core problem. Socio-cultural forces do not produce uniform performance outcomes because their impact depends on how entrepreneurs cognitively appraise and manage them. The paper therefore identifies that women-owned enterprise performance in Northern Nigeria cannot be adequately explained by socio-cultural constraints alone. What is missing is a mechanism-based explanation for performance heterogeneity that integrates structural forces with individual cognitive capability. Without a clear understanding of why some women succeed while others continue to struggle, policy measures that focus only on structural changes, such as improving access to credit or reducing regulatory barriers, are unlikely to benefit everyone in the same way. This challenge is therefore twofold. Theoretically, it calls for an explanation of why performance differs across similar conditions. Practically, it requires identifying the key factors that can be leveraged to support better outcomes for women, even in environments that remain constrained.

Research Propositions

Based on the theoretical framework developed above, the following research propositions guide the inquiry. Consistent with existing literature, culture, religion, family support, and social support are expected to influence women-owned enterprise performance. The primary contribution of this framework lies in its moderation logic.

Proposition 1 (P1): Entrepreneurial mindset moderates the relationship between socio-cultural influences and women-owned enterprise performance, such that constraining effects (from culture and religion) are weaker when entrepreneurial mindset is high, and enabling effects (from family and social support) are stronger when entrepreneurial mindset is high.

Proposition 2 (P2): The cognitive mechanisms of reinterpretation, selective compliance, strategic avoidance, and identity negotiation mediate the conditioning effect of entrepreneurial mindset on socio-cultural constraints.

Proposition 3 (P3): The moderation effect of entrepreneurial mindset is bounded by household bargaining position, community enforcement intensity, and enterprise visibility. The conceptual framework positions culture, religion, family support, and social support as direct socio-cultural determinants of enterprise performance. Entrepreneurial mindset is modelled as a unidimensional cognitive capability that moderates the relationship between these socio-cultural forces and enterprise performance. Under this formulation, high levels of entrepreneurial mindset weaken the negative performance effects of constraining socio-cultural norms and strengthen the positive effects of enabling relational resources.

Literature Review

The literature review is organized around three theoretical foundations: socio-cultural influences as informal institutions, the contextual features of Northern Nigeria as a causal modifier, and entrepreneurial mindset as an integrated cognitive capability, concluding with cognitive appraisal theory and moderation logic.

Socio-Cultural Influences as Informal Institutions

Informal institutions are socially shared norms, values, and belief systems that regulate legitimacy, mobility, and opportunity space (North, 1990; Bruton et al., 2021). In Northern Nigeria, these forces are particularly potent due to weak formal enforcement structures, which makes social legitimacy critical for enterprise survival.

Culture. Gendered cultural norms function as informal institutional constraints structuring sector entry, time allocation, and growth ambition. They limit access to high-growth industries and formalized markets, channeling women into low-capital activities (Klasen & Pieters, 2023). Domestic responsibility prescriptions constrain reinvestment and scalability (Song et al., 2025). Embedded trust within communities, however, reduces transaction costs and supports micro-enterprise survival (Rehman & Basit, 2023). In Northern Nigeria, these dynamics are amplified by honor norms referred to as *mutunci*, which render public economic conduct a family-level reputational concern.

Religion. Religious prescriptions shape economic conduct through moral codes and legitimacy frameworks. In Northern Nigeria's Muslim-majority context, interpretations influence sector choice, financing mechanisms including prohibitions on *riba*, and gender interaction norms (Althalathini et al., 2022). Conformity enhances local legitimacy and trust, whereas deviation incurs reputational costs. Islamic legal pluralism grants religious norms quasi-legal force, making compliance a condition of social legitimacy rather than optional piety.

Family Support. Family structures regulate resource allocation, labor deployment, and surplus distribution. Emotional support, childcare assistance, and startup capital positively affect performance (Huq & Arenius, 2025). At the same time, family role expectations constrain ambition and reinvestment, and intergenerational authority can limit strategic autonomy (Bağış et al., 2023). Extended family governance referred to as *iyali* functions as a claims-making institution that can appropriate entrepreneurial surplus through kinship obligations, unlike nuclear family arrangements with clearer surplus retention.

Social Support. Network embeddedness is critical in institutionally weak environments. Social ties provide access to information, mentorship, and alternative financing (Welsh et al., 2022). Informal savings groups such as *adashi* substitute for formal banking (Sakyi-Nyarko et al., 2024). However, homogeneous networks can constrain innovation because over-embeddedness limits exposure to diverse market information (John, 2024).

Northern Nigeria as Causal Modifier

Northern Nigeria contains contextual features that causally modify how socio-cultural influences operate. Islamic legal pluralism entails the coexistence of Sharia and secular statutory law, which creates interpretive flexibility and allows entrepreneurs to invoke different frameworks strategically. Islamic inheritance and finance provisions directly shape women's asset ownership and financing options (Althalathini et al., 2022). Extended family governance through lineage structures referred to as *iyali* governs resource allocation and surplus distribution, operating simultaneously as welfare system and claims-making institution that can appropriate entrepreneurial surplus (Song et al., 2025). Honor norms referred to as *mutunci* operate collectively because a woman's conduct reflects on her lineage, creating strong social sanctioning (Onoshakpor et al., 2024). Gendered mobility constraints, commonly described as *purdah*, restrict spatial mobility, particularly among married women,

making home-based enterprises default organizational forms (Ogundana & Okafor, 2024). Informal financial architecture characterized by limited banking and interest prohibitions creates reliance on rotating savings groups such as *adashi*, trade credit, and family remittances (Sakyi-Nyarko et al., 2024).

Entrepreneurial Mindset as an Integrated Cognitive Capability

Entrepreneurial mindset refers to a coherent and patterned cognitive orientation that shapes how individuals perceive, interpret, and act under uncertainty (Baron, 2007; Shrivastav & Rao, 2025). This study treats it as an integrated cognitive capability reflecting an entrepreneur's overall capacity to identify possibilities, appraise constraints constructively, and sustain purposeful action in the face of adversity. As an integrated construct, entrepreneurial mindset combines opportunity-oriented thinking, adaptive interpretation, and task-related confidence into a unified orientation toward action.

Within the context of Northern Nigeria, entrepreneurial mindset influences how socio-cultural expectations are cognitively processed. Entrepreneurs with a strong entrepreneurial mindset are more likely to interpret restrictive norms as navigable parameters rather than insurmountable barriers. The cognitive mechanisms through which this occurs include reinterpretation (reframing institutional constraints as design boundaries), selective compliance (strategically adhering to visible norms while adjusting less visible practices), strategic avoidance (navigating around institutional friction), and identity negotiation (managing overlapping role expectations).

Cognitive Appraisal and Moderation Logic

Cognitive appraisal theory explains why identical conditions produce heterogeneous responses (Shepherd & Williams, 2022). Individuals evaluate stimuli through primary appraisal, which assesses significance for well-being, and secondary appraisal, which evaluates coping capability. Women with strong mindset dimensions interpret socio-cultural pressures as challenges rather than threats and perceive themselves as possessing coping resources. This reasoning aligns with bounded agency approaches (McMullen et al., 2021), justifying modeling mindset as moderator rather than mediator. Mediation would imply socio-cultural influences shape performance through mindset development. Moderation instead posits that mindset conditions how constraints are experienced and managed, functioning as filter between institutional pressure and behavioral response.

Conceptual Model

Based on the theoretical foundations developed above, Figure 1 presents the conceptual model that guides this study. The framework positions culture, religion, family support, and social support as direct socio-cultural determinants of enterprise performance. Entrepreneurial mindset is modeled as a unidimensional cognitive capability that moderates the relationship between these socio-cultural forces and enterprise performance.

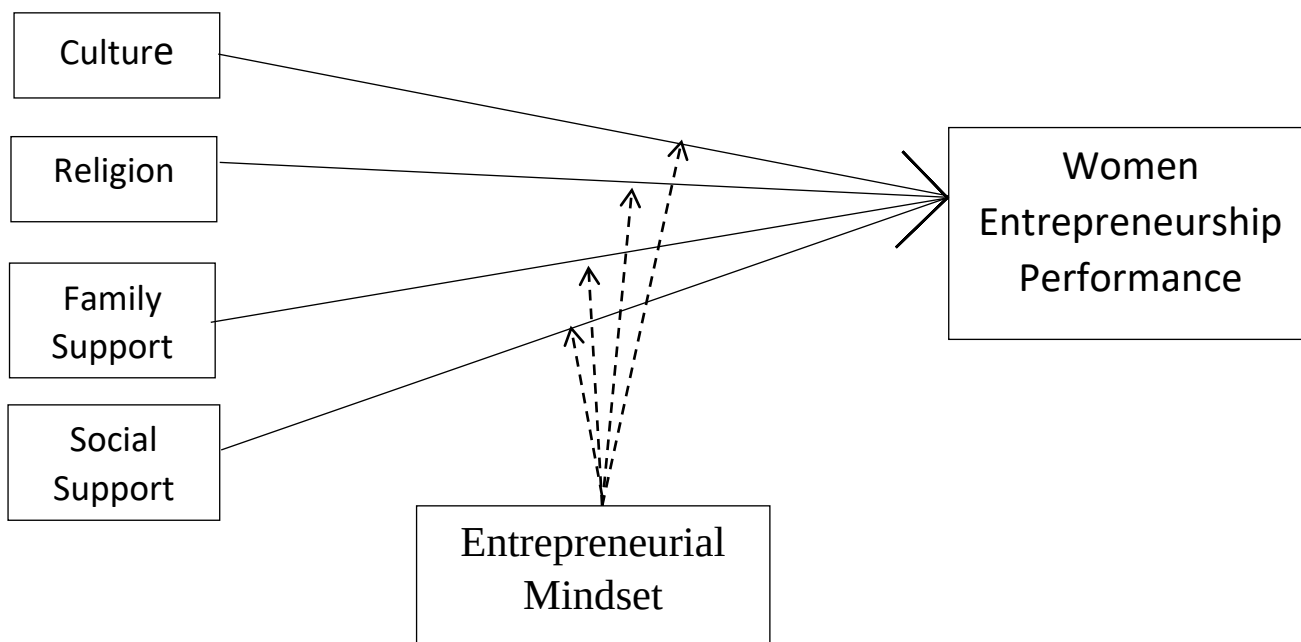
The decision to treat entrepreneurial mindset as unidimensional rather than multidimensional is deliberate and requires justification. Three considerations support this choice. First, theoretical integration: Under the restrictive socio-cultural conditions of Northern Nigeria, opportunity recognition without self-efficacy rarely translates into action, and adaptability without opportunity recognition lacks strategic direction. The three dimensions are

functionally interdependent rather than independently operable within highly constrained environments. Second, cognitive appraisal coherence: Cognitive appraisal theory suggests that individuals respond to institutional pressures through a unified threat-versus-challenge evaluation, not through separate dimensional assessments. A unidimensional mindset construct aligns directly with this theoretical logic. Third, moderation parsimony: The moderation logic advanced in this paper requires a single conditioning mechanism. Separating dimensions would imply that some dimensions moderate certain socio-cultural forces while different dimensions moderate others, a more complex model for which the current theoretical foundation provides no clear basis. Parsimony and contextual fit therefore favor the unidimensional specification.

Rather than breaking the construct into separate parts, entrepreneurial mindset is viewed here as a unified way of thinking. It reflects an entrepreneur's overall ability to spot opportunities, make sense of challenges in a positive and practical way, and take confident action even when the environment is uncertain. As a unified moderator, it conditions how socio-cultural influences translate into performance outcomes by shaping appraisal, strategic response, and persistence.

Under this formulation, entrepreneurial mindset does not operate through separate dimensional pathways. Instead, it functions as a coherent cognitive lens that filters institutional pressures and alters their behavioral consequences. High levels of entrepreneurial mindset weaken the negative performance effects of constraining socio-cultural norms and strengthen the positive effects of enabling relational resources.

Figure 1: Conceptual Model of Socio-Cultural Influences, Entrepreneurial Mindset, and Women-Owned Enterprise Performance



The figure illustrates that socio-cultural influences do not operate uniformly across women entrepreneurs. Their effects on performance are conditional upon entrepreneurial mindset as a cognitive capability. By theorizing Northern Nigeria's institutional architecture as causally modifying these interactions, the framework explains how identical institutional pressures may yield divergent performance outcomes.

Results and Discussion

As this is a conceptual paper without original empirical data collection, no results are presented. The paper does not report findings from primary research. Instead, the paper advances theoretical propositions and a conceptual framework for future empirical testing. The discussion below summarizes the theoretical contributions and logical implications of the proposed framework as presented in the original document.

The paper advances women entrepreneurship research by moving beyond deterministic socio-cultural explanations (Mesa-Toro, 2026). By integrating informal institutional theory (North, 1990; Bruton et al., 2021) with entrepreneurial cognition research (Baron, 2007; Shrivastav & Rao, 2025), the framework offers a mechanism-based explanation for performance heterogeneity grounded in cognitive capability.

Theoretical contributions are threefold. First, the study introduces conditional logic and mechanism specification into research on socio-cultural determinants of women's enterprise performance, clarifying through which cognitive processes and under which boundary conditions socio-cultural forces exert influence (Abumuamar & Reinecke, 2025). Second, it advances entrepreneurial mindset scholarship by conceptualizing mindset as an integrated cognitive capability embedded within institutional contexts, thereby strengthening contextual validity and theoretical coherence (Obschonka & Audretsch, 2024). Third, it extends emerging market scholarship by demonstrating that performance outcomes depend on interaction between institutional embeddedness and cognitive capability while theorizing how Northern Nigeria's institutional architecture including Islamic legal pluralism, extended family governance, honor norms, and mobility constraints modifies these interactions (Boso et al., 2025; Welter, 2011).

The moderation logic derived from cognitive appraisal theory explains why identical conditions produce heterogeneous responses. Women with strong entrepreneurial mindset interpret socio-cultural pressures as challenges rather than threats and perceive themselves as possessing coping resources. The strength of moderation effects is expected to depend on boundary conditions including household bargaining position, community enforcement intensity, and enterprise visibility. Moderation effects are expected to be strongest among women with strong bargaining positions operating in moderate enforcement environments and managing low-visibility enterprises, and weakest under weak bargaining positions, high enforcement, and high enterprise visibility.

Conclusion and Recommendations

This study explains why women-owned enterprise performance in Northern Nigeria remains uneven despite shared socio-cultural conditions. Drawing on informal institutional theory, cognitive appraisal theory, and household bargaining perspectives, the paper advances a moderation-based framework that integrates structure and agency while specifying precise cognitive mechanisms. Socio-cultural influences do not operate uniformly across women entrepreneurs. Their effects on performance are conditional upon entrepreneurial mindset, conceptualized as a unidimensional cognitive capability that combines opportunity recognition, strategic adaptability, and entrepreneurial self-efficacy. These effects operate through four cognitive mechanisms: reinterpretation, selective compliance, strategic avoidance, and identity negotiation. By theorizing Northern Nigeria's institutional architecture as causally modifying these interactions, the framework explains how identical

institutional pressures yield divergent outcomes. As a conceptual paper, the framework has not yet been empirically tested. The model focuses on informal socio-cultural institutions and excludes formal regulatory and macroeconomic factors to preserve analytical clarity.

Policy and Practice Recommendations

Policy interventions should not focus exclusively on structural reforms such as finance access or regulatory support. While necessary, such reforms may yield uneven outcomes if entrepreneurial mindset is not simultaneously strengthened. Entrepreneurship development programs that cultivate opportunity-oriented thinking, adaptive problem solving, and sustained execution capacity can moderate restrictive socio-cultural norms. Boundary condition analysis suggests that such interventions will be most effective when combined with efforts to strengthen household bargaining positions and when tailored to variations in community enforcement intensity. Integrated programming that combines structural access with cognitive capability development is therefore more likely to produce sustained performance improvements. Improving women-owned enterprise performance requires a dual approach in which structural reforms remain essential but are complemented by parallel development of cognitive capabilities.

Recommendations for Future Research

Future research should empirically test the moderating role of entrepreneurial mindset. Quantitative studies could adopt longitudinal designs, measuring socio-cultural influences and entrepreneurial mindset before assessing enterprise performance. Multi-source data (from entrepreneurs, family members, and community representatives) would reduce bias. Multi-level analysis (individual and community levels) would capture contextual variation.

Key constructs can be measured as follows. Socio-cultural influences may be captured through community-level indicators (e.g., gender norms) and individual perceptions of social expectations. Entrepreneurial mindset, treated as a unidimensional construct, should be measured using established scales validated for reliability. Enterprise performance should assess growth (sales, employment), profitability (net income, margins), and sustainability (survival, formalisation). Analytical methods such as structural equation modelling or regression with interaction terms would assess moderation effects. The framework would receive empirical support if entrepreneurial mindset weakens negative socio-cultural effects and strengthens positive relational resource effects.

Beyond quantitative testing, qualitative methods including ethnographic observation and life history interviews could illuminate how the proposed cognitive mechanisms operate in practice. Comparative studies across other institutionally dense regions (Sahelian contexts, Middle Eastern societies with Islamic legal pluralism, South Asian settings with alternative family governance structures) would refine external validity. Additional boundary conditions including education, digital access, marital status, and parity warrant examination. Intersectional approaches grounded in Crenshaw (1991) may reveal how multiple identity dimensions jointly shape institutional pressures and cognitive responses. Further work may examine whether entrepreneurial mindset also moderates formal institutional constraints including regulatory burdens, corruption, and infrastructure deficits.

To conclude, women-owned enterprise performance in Northern Nigeria cannot be adequately explained by socio-cultural constraints alone. Performance emerges from interaction between embedded structural forces and entrepreneurial mindset as a cognitive capability. By integrating institutional and cognitive perspectives and specifying

mechanisms, this study provides a theoretically coherent explanation for heterogeneity and establishes a foundation for subsequent empirical inquiry.

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APPRENTICESHIP TRAINING AS METHOD OF TACIT KNOWLEDGE TRANSFER AND GROWTH OF WOODWORK ENTERPRISES IN OLAMABORO LGA, KOGI STATE, NIGERIA

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Abstract

Woodwork enterprises in Nigeria are becoming globally competitive businesses which to an extent are dependent on knowledge shaped by apprenticeship training, which are the light that radiate woodwork enterprises abilities as well as growth. The study focused on apprenticeship training as a method of tacit knowledge transfer and growth of woodwork enterprises in Olamaboro, Kogi State, Nigeria. Trainees had been the bane of quality products in the woodwork manufacturing enterprises which had called for the nature of knowledge acquired. The objectives of this study are to investigate the skills acquisition of trainees and growth of woodwork enterprises and to determine the extent of relationship between trainees' feedback and growth of woodwork enterprises in Olamaboro, LGA, Kogi State,, Nigeria. The population of the study is the total number of trainees in woodwork enterprises as of June, 2026, which was 5010 with a selected sample size of 525 through simple random approach. Two hypotheses were tested at a 95% confidence level. A quantitative approach was employed for the study with a survey method. The study used primary data through 5point Likert scale structured questionnaire. The data generated were analyzed using both descriptive and inferential statistics. The inferential statistics employed in this study included SEM-PLS path coefficient, confirmatory factor analysis and bootstrapping. The findings revealed that skills acquisition of trainees have significant relationship with growth of woodwork enterprises ($\beta=0.129$, $p< 0.001$), trainees have positive relationship with growth of woodwork enterprises in Olamaboro, Kogi State, ($\beta<0.076$, $p<0.000$). The study established that skills acquisition have the most significant relationship with growth of woodwork enterprises in Olamaboro, Kogi State. The study recommends that woodwork should give prominence attention to trainees and employees with skills acquisition in getting a job done as well as encourage employees with

employees/trainees feedback even if the report does not speak well of the knowledge at the point of employment and training.

Keywords: Apprenticeship Training, Kogi State Nigeria, Olamaboro LGA, Tacit Knowledge Transfer and Growth, Woodwork Enterprises

Introduction

The growth of an enterprises is modelled towards meeting customers' specification which is measured by quality, functionality and delivery of the exact demands of a product. Enterprises that are competitive must be able to meet the needs of the customers which comes as a result of training received through apprenticeship. Modern apprenticeship is a vocational education mode that integrates the advantages of traditional apprenticeship training and modern school education (Kofi, 2018). It adapts to the needs of large-scale social production and is one of the trends in developing vocational education in the world through which knowledge is acquired either on the basis of skills acquisition or required competencies which the trainees achieved. The ability of trainees to acquire skills is also necessitated by the trainees' competencies to productively use the training gotten (Leonard *et al*, 2013, Okwo *et al.*, 2019). Apprenticeship as training is an art, occupation or craft under an official agreement that sets the conditions and interval of learning between the trainer, trainee and even an apprentice.

Ekpe & Razak (2016) perceived that apprenticeship is a formal relationship between employer and apprentices through which the mutual obligations and duties of each one is established by written agreement. A careful study of our towns in Kogi State, portrays a very good number of tradesmen, these often include: rewinders, welders, builders, carpenters, cabinet makers and electronics servicemen just to mention a few. Today, many young people are found in different occupations with a view of acquiring skills in the maintenance and construction of electrical appliances such as electric motors, generators, public power supply transformers, welding machines and their likes, such young person's optimism to graduate and gain lucrative jobs and opportunities to earn a living or set up their own workshops in a few years or even months (Titus, *et al.*, 2020) which to an extend enables the skills acquired to be effectively used and increase their potency of living comfortably and increase their standard of living. Specifically, apprenticeship as a veritable tool which is one of the functional prerequisites for employment generation and poverty reduction at low investment cost as well as improving the wellbeing of the individuals has not been adequately harnessed in tackling the unemployment surge among young persons who are meant to be drivers of development in Nigeria.

Ezigbo *et al.*, (2019) posited that Apprenticeship, mostly supply the technical competencies required for paid employment, however, it is unclear if apprentices receive the skills, and they needed to be successful at self-employment. This is because some former apprentices become unemployed at the end of the four year formal apprenticeship period because the apprentices could not secure employment elsewhere. Essentially, apprenticeship is a common trend in the world in which youth and adolescent are empowered. The world-changing realities of globalization, competitiveness and a knowledge-based economy, strongly underscore the relevance of technical skills acquisition among workers. Fajobi *et al.*, (2017) admitted that reasonable attention which should have been focused on alternative empowerment schemes, especially apprenticeship to activate the role of youths in

development has been conspicuously neglected. The form of a decline in apprenticeship has evolved through a sociocultural process in the society. Apprenticeship is generally seen to be meant for people who cannot cope with the demands of the formal education system or those whose parents cannot afford to sponsor their education (Adekola, 2013).

Previous researchers (such as Okwo *et al.* (2019), Uzonna (2021); Awwal, (2016) Leonard *et al.*, (2013), Fajobi (2017), Adu, *et al.* (2013), Busch (2019), Peet (2019) studied either the impact, role or use of apprenticeship training on firms growth but none seems to have considered apprenticeship training as methods of tacit knowledge transfer and growth of woodwork manufacturing enterprises. The woodwork sector is very crucial to the growth of every economy despite the shift towards the knowledge economy, traditional accounting that focuses more on the physical assets has continued to be prevalent in the presentation of the financial statement to the exclusion of more important assets, the human capital (Armstrong, 2006). This has contributed to various crises experienced by many woodwork firms in recent times in Nigeria (Uzonna, 2021). Thus, a gap exists since empirical evidence of the understanding of apprenticeship training as methods of tacit knowledge transfer concepts in developing economies is still at its infant stage (Adeyeye, 2018).

Hence, there are sparse of literature in this area. This study therefore investigates the apprenticeship training as methods of tacit knowledge transfer and growth of woodwork manufacturing enterprises in Olamaboro LGA, Kogi State, Nigeria based on Person Fit

Environment theory. In doing this, the following research questions were addressed:

1. What is the degree of correlation between skills acquisition and growth of woodwork enterprises in Olamaboro LGA, Kogi State, Nigeria?
2. Is there any relationship between trainees' feedback and growth of woodwork manufacturing enterprises in Olamaboro LGA, Kogi State, Nigeria?

Literature Review

Concepts of Apprenticeship Training

Apprenticeship training essentially talks of a well-thought-out, paid, effort built learning system that combines on the job training with technical teaching to help individuals gain industry recognized skills and certificates. It bridges education and employment, usually lasting between one to three years, providing a channel to skilled full-time jobs. It is a configured system of learning in which an individual (Apprentice) acquires practical as well as real skills, information, knowledge and competencies in a particular business and occupation by receiving direct instruction and dynamic experience under the command of a skilled expert known as a foremost or mentor. It entails a vowed and contractual relationship between a trainee and an employer where trainee learns a trade or profession under the observation of an experienced practitioner (Smith *et al.*, 2023). In many systems, apprentices receive paid training while participating in structured learning activities designed to support career progression and productivity (Kueh & Wilson, 2025). Apprenticeships are continuously looked into and viewed as an important strategy for addressing skills shortages and enhancing workforce development in the modern day economies (Christensen, 2023).

Skills Acquisition

This happens when there is tendency of employer to evaluate proficiency of the trainees in specific task handed to him/her. Employers need to determine the productivity of the trainees when given an task in order to achieve a specific objectives. De Grip (2024) sees skill acquisition as the process of gaining competencies, knowledge and practical abilities through education, training, or work experience that enable individuals to perform tasks successfully. Awotunde & Aregbeshola (2025) argue that skill acquisition involves a structured training programmes designed to equip individuals with creative, innovative and professional competencies needed for the modern labour market. Emah *et al* (2025) define skill acquisition within Technical and Vocational Education and Training (TVET) as the process through which learners obtain practical and cognitive competencies and enhance their ability to access employment and adapt labour-market demands. The propensity for firm to increase the special abilities in trainees is as result of training received.

Kalabuki & Uzorka (2026) explain that skill acquisition involves continuous learning mechanisms such as micro-credentials and short-course training that enable individuals to rapidly acquire competencies required in dynamic labour-markets. They emphasize lifelong learning as a core element of skill development in the modern knowledge economy. Runswick *et al* (2026) see skill acquisition as an applied scientific field concerned with improving perceptual, cognitive, and motor performance through structured practice, learning environments, and systematic training interventions.

Skills Acquisition and Growth of Woodwork Enterprises

Skills acquisition and the growth of woodwork enterprises are closely related. Skills acquisition provides workers and entrepreneurs with the technical, managerial, and creative abilities needed to operate woodworking businesses effectively, while enterprise growth reflects improvements in productivity, profitability, and market expansion. Increased Productivity. When workers acquire woodworking skills, they can perform tasks more efficiently and accurately. This increases production output, enabling woodwork enterprises to meet customer demands and grow. Improved Product Quality, Skilled woodworkers produce high-quality products with better finishing and durability. Quality products attract more customers, leading to increased sales and business expansion. Enhanced Innovation, Skills acquisition exposes workers to modern woodworking techniques, tools, and designs. This encourages innovation and helps enterprises create unique products that are competitive in the market. Reduced Waste and Production Costs Trained workers use materials and equipment more effectively, reducing wastage and operational costs. Lower costs improve profitability and support enterprise growth. Greater Customer Satisfaction Workers with the necessary skills can better meet customer specifications and deliver products on time. Satisfied customers are more likely to make repeat purchases and recommend the business to others, Business Expansion and Employment Creation, Entrepreneurs who acquire both technical and business management skills are better equipped to manage and expand their enterprises. As businesses grow, they create employment opportunities for others. Increased Competitiveness Skills acquisition enables enterprises to adapt to industry changes and adopt modern production methods. This strengthens their competitive position and supports long-term growth. Skills acquisition and the growth of woodwork enterprises is **positive and direct**. As the level of skills acquisition increases, woodwork enterprises are more likely to experience higher productivity, better product quality, increased profitability, customer

satisfaction, and overall business growth. Therefore, investment in skills training is a critical factor in the success and sustainability of woodwork enterprises.

Trainees Feedback

Trainee feedback refers to information, opinions, and evaluations provided by trainees about a training program, instructor, learning materials, delivery methods, and overall learning experience. Trainee feedback is a valuable tool for assessing and improving training programs. When collected and analyzed effectively, it helps organizations enhance learning quality, increase participant satisfaction, and achieve better training outcomes. Trainees feedback plays vital roles, these roles are: Measures training effectiveness: Helps determine whether learning objectives were achieved; Identifies strengths and weaknesses: Reveals what worked well and what needs improvement. Improves future training: Guides adjustments to content, methods, scheduling, and resources. Enhances trainee engagement: Shows participants that their views are valued. Supports continuous improvement: Provides data for evaluating and refining training programs over time.

Trainees Feedback and Growth of Woodwork Enterprises

Trainee feedback plays an important role in the growth and development of woodwork enterprises. It consists of the opinions, experiences, and suggestions provided by trainees regarding the training they receive in woodworking skills, business management, safety practices, and production techniques, **Improves Skill Development**; Feedback helps trainers identify areas where trainees struggle and adjust training methods accordingly, Better-trained workers produce higher-quality wood products, leading to increased customer satisfaction and business growth. **Enhances Training Quality**; Trainees can suggest improvements to course content, practical sessions, and learning materials. Improved training programs result in a more competent workforce for woodwork enterprises. **Encourages Innovation**; Trainees often provide fresh ideas about product design, production processes, and market trends. These ideas can help enterprises develop new products and remain competitive. **Identifies Resource Needs**/ Feedback may reveal shortages of tools, equipment, or materials used during training. Addressing these needs improves productivity and efficiency in the enterprise. **Promotes Safety and Efficiency**. Trainees can report challenges related to workshop safety and machine operation. Implementing recommendations reduces accidents and improves operational performance. **Supports Business Sustainability**, Continuous feedback allows enterprises to adapt training programs to changing industry demands. A skilled and adaptable workforce contributes to long-term business growth. Increased productivity Higher product quality Improved employee competence, Greater customer satisfaction, Enhanced innovation and creativity, Better profitability and competitiveness. Trainee feedback is a valuable source of information for woodwork enterprises. By listening to and acting on trainee suggestions, enterprises can improve training effectiveness, develop skilled workers, enhance product quality, and achieve sustainable growth in the woodworking industry

Factors influencing apprenticeship training

There certain factors known to be affecting apprenticeship training (John, 2018) listed two major factors which are; level of education: The level of education in which an employees and trainees attain determines the extent he undergoes apprenticeship training. If a firm needs

a graduate to get trained, secondary certificate will not matter when recruitment for the training is needed (Adoo, 2018). Same way, a candidate that is required for training base on primary certificate, a graduate will not be needed there since his level is higher than the required. This means the extent at which a person is educated determines the apprenticeship training such a person receives. In addition, there is people's perception which deals with how people as well as trainees view certain things within the firm.

Strategies for apprenticeship training

Find the Right Person; in many cases, you have a strong say in who you bring onto your team. In many cases, you have a strong say in who you bring into your team. Do your due diligence and only employ individual who mesh with your team culture and whom you could see adding real value to your operation for years to come. Consider what your business will look like in several years, and choose the types of individuals who can further that vision. These are; Set Clear Expectations; once your new teammate is on board, be extremely clear about their behavior and skills expectations. Provide them explicit guidelines that govern their daily tasks so they have an accurate road of what a great job looks like (James, 2019).

Secondly, build a positive relationship, note that the satisfaction you find in your work is largely influenced by the people by your side. For your apprentice, this truth exists as well. You need to do your best to be the type of friend and colleague you would wish to have them. Ask about their family and personal interests where appropriate, and make them feel welcome on the team. A positive dynamic will go a long. Trainees also need to be a resource: As an apprentice learns, tries, fails, and tries again, provide ample support to their efforts. Extend a helping hand where it makes sense, but allow them to learn by doing wherever possible. Be willing and able to provide career and job-specific advice; know that you are their primary resource during this time and they will be looking for your guidance.

Besides, create a safe work environment (Ameh, 2018) Never, ever ask your apprentice to do something that you would not feel safe doing yourself. It's a legal requirement that your apprentice have all the necessary protective equipment and is fully briefed on the safety protocols of the job, so take that responsibility seriously also, a trainee needs to provide valuable feedback. He is not simply the apprentice's chaperone: he is the shepherd. As he grows more comfortable working together with colleagues, he must be vocal about which areas of his work needs improvement, and where they show strength. Use positive reinforcement to encourage excellent work and further foster a collegial atmosphere. At the end of the apprenticeship, you may add a journeyman to your team, so it is your responsibility to train them thoroughly with intentional instruction to ensure they can add value.

Materials and Method

The study is carried out in Olamaboro LGA, Kogi State, Nigeria, a fast developing economy in the eastern part of Kogi State. A self-structured questionnaire adopted from previous literature (Hadizadeh, 2013) on five-point Likert scale was used to generate data to investigate the relationship between skills and talent as tacit knowledge transfer methods adopted and growth of woodwork enterprises in the competitive environment. To ensure the face and content validity of the research instrument, three experts in the field studied and offered appropriate suggestions which were carried out. For the reliability of the instrument, Cronbach Alpha's was used to test the items in the questionnaire. The coefficient result was

0.89 which is high enough to consider the instrument reliable for the study (Bruce & Kay, 1978). A pilot study was conducted on 60 woodwork firms with test–re-test result of Pearson-Moment Correlation coefficient was 80% with 6 items each and cofactor analysis lead to the deleting of 3 items each out of two constructs. The sampling frame consisted of 20 producers and trainees of woodwork firms, Giddens (1983) selection formulae was used to obtain the sample size. The simple random sampling method where everyone has the equal chance of being selected was employed to select the sample size of five thousand hundred and twenty-five (5010) producers, but only five-hundred and twenty-five (525) producers responded. Descriptive statistics, Pearson-Moment Correlations and Multiple regression analytical technique were used for analysis.

The Dependent Variable:

Growth was measured with increase in location and branches, returns on asset that is, the ability of woodwork enterprises to have more locations, outlets and branches to the woodwork enterprises that had in the past five years as obtainable in some knowledge transfer studies (Hadizadeh, 2013). That is, how increase in number of trainees does they take in each year in the past 5 years (2021-2026). Therefore, the increase in number of employees was considered a useful measure of growth.

Independent Variables:

The Apprenticeship training that were used are skills acquisition and employees feedback were measured with 3 items based on effectiveness of IT facilities, availability of data base for knowledge storage, the methods of documentation of expert's knowledge, means of acquisition, assimilation and storage of conference/training materials; means of conversion and storage of Apprenticeship training as method tacit knowledge transfer. Respondents were at liberty to choose between the ranks of 5 to 1 with highest score 50 and least score 10. Skills acquisition was measured with one-on-one knowledge sharing, place worked before and experience gathered, change of seat (reshuffle), in-house training, brainstorming and sharing of apprenticeship training as method of tacit knowledge through interactions, use of A total of 3 items were raised and respondents are at liberty to choose between the ranks of 5 to 1.

Results and Discussion

Descriptive Data Analysis

This section presented a brief profile of the sample 525 woodwork enterprises' trainers, trainees and employees in the Olamaboro LGA, Kogi State Nigeria. It explained the general features of the respondents. The study adopted face to face survey method with a sample size of 525.

Table 1: Respondents by Response Rate

Response	Frequency	Percentage
Furniture (a) producers	311	50.8
Upholstery (b) producers	156	25.5
Carpentry (c) workers	58	15.4
Respondents who work with all (d)		
Total		100
Summation of producers of woodwork (a+b)	525	89.5
Summation of workers of Carpentry all woodwork (a+d)	312	65.4
48		

Source: Authors' work, 2026

From Table 1, the respondents that produce furniture were 311, upholstery were 156, carpentry were 94 those that work with all were 48. This indicated that respondents used all form of woodwork. However, the more respondents used furniture (50.8%) than upholstery (25.5%) and carpentry (15.4%). This supported the finding of Awwal (2017) in which four types of woodworks (cabinetry, joinery and carpentry and woodturning) were most patronized industry with 50.8% (furniture) having 25.5% in upholstery and 48% in carpentry while all who use woodwork were 7.8%.

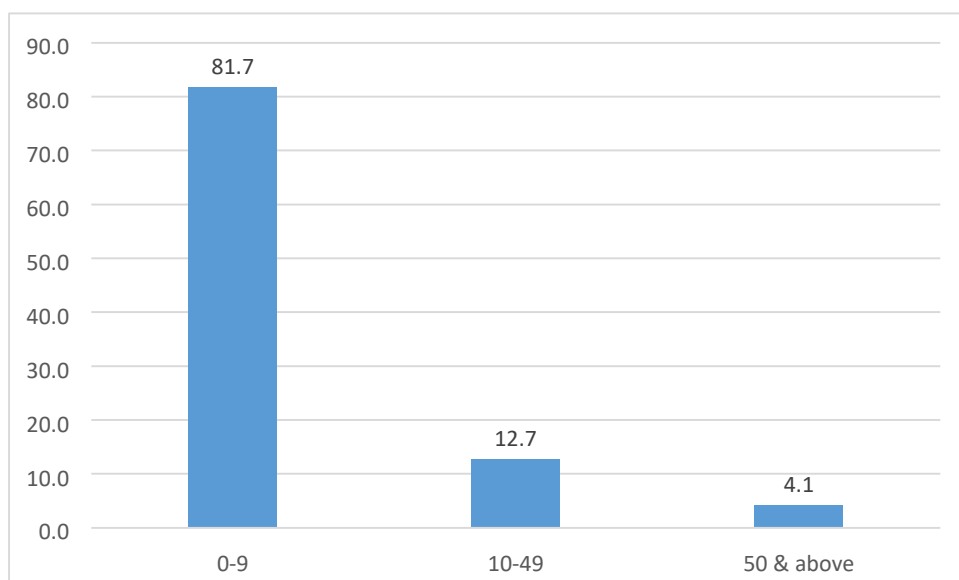


Figure 4.8 Respondents by Numbers of Employees

The chart above indicated that the percentage distribution of the number of respondents between 0-9 are employees with (81.7%), followed by 10-49 with (12.7%), and the lowest is 50 and above with (4.1%), this showed that the number of employees in the woodwork furniture firm is 0-9, indicating less number of employees. This supports Awwal, (2017) assertion which said that many woodwork furniture firms have a smaller number of employees who are directly engage to carry out certain tasks within the firm. Woodwork firms are not known to be a mass employer of labor and people but they engage more trainees who are already apprentices to them and retain them in order to perform optimally. Woodwork firms are technically demanding and as such, the employment rate is so low and this gives chances for people to enroll and be trained for a better future Itodo, (2016).

Inferential Statistics of the Analysis of Data

Model-Fit

The SEM model fit indices are presented as derived from the analysis of the research data for the study.

Table 2: Structural Equation Modeling (SEM) Model Fit Indices

Model Index	Fit	Estimated model	Null model	Estimated valued for fit	Sources
ChiSqr/df		6.200	15.934	3 - 5, Highly influenced by sample size	Weinammn (2020)
RMSEA		0.092		< 0.9	Eunice (2018)
GFI		0.841		> 0.8	Pearce (2017)
AGFI		0.793		> 0.8	Trossard (2016)
SRMR		0.063		< 0.8	Ahmad and Zubair (2021)
NFI		0.799		> 0.7	Enimola (2019)
TLI		0.791		> 0.7	Ameh (2018)
CFI		0.825		> 0.7	Abdul. (2022)

Source: Researcher, (2026)

The model fit indices, which include Root Mean Square Error of Approximation (RMSEA), is 0.092 which is less than 0.9 Eunice (2018) showed that the model is deemed fit, the Goodness of Fit Index (GFI), which is 0.841 and it is greater than 0.8 also showed that the GFI model is highly influenced by the sample size (Pearce, 2017) and explained that the model is fit for the result, Adjusted Goodness of Fit Index (AGFI) which is 0.793 and it is greater or equal to 0.8, which made it to highly influenced the model Trossard (2016) and the result of the model, Standardized Root Mean Square Residual (SRMR) gave 0.063, which is less than 0.8 of the sample size and this highly influenced the model fit.

Ahmad & Zubair (2021) who asserted that model fit determined the need for the model Normed Fit Index (NFI), with a result of 0.79, which is greater than 0.7, Enimola (2019) ho asserted that the structure of the model fit is highly influenced by the sample size, Tucker-Lewis Index (TLI) showed a result of 0.825 which is greater than 0.7 (Abdul, 2022) and the result showed that there was highly influenced of TLI on the sample size, these served as indicators of model fitness. These indices assess how well the research data collected aligns with the models under investigation. It is important to note that Structural Equation Modeling - Partial Least Square (SEM-PLS), which developed principal component analysis and least square regression to comprehensively evaluate causal and predictive relationships within complex models involving multiple constructs and items, does not adhere to the typical traditional methods for fitness indices. This deviation is due to the fact that PLS-SEM solutions are not derived by reducing the differences between observed and estimated covariance matrices, as described by Juliana (2020). However, the model fit indices in the study indicate a relatively strong model fit, despite the unconventional approach of SEM-PLS in comparison to the traditional Covariance-Based Structural Equation Modeling (CB-SEM).

Table 3: Summary of Composite Reliability of Measurement Instrument

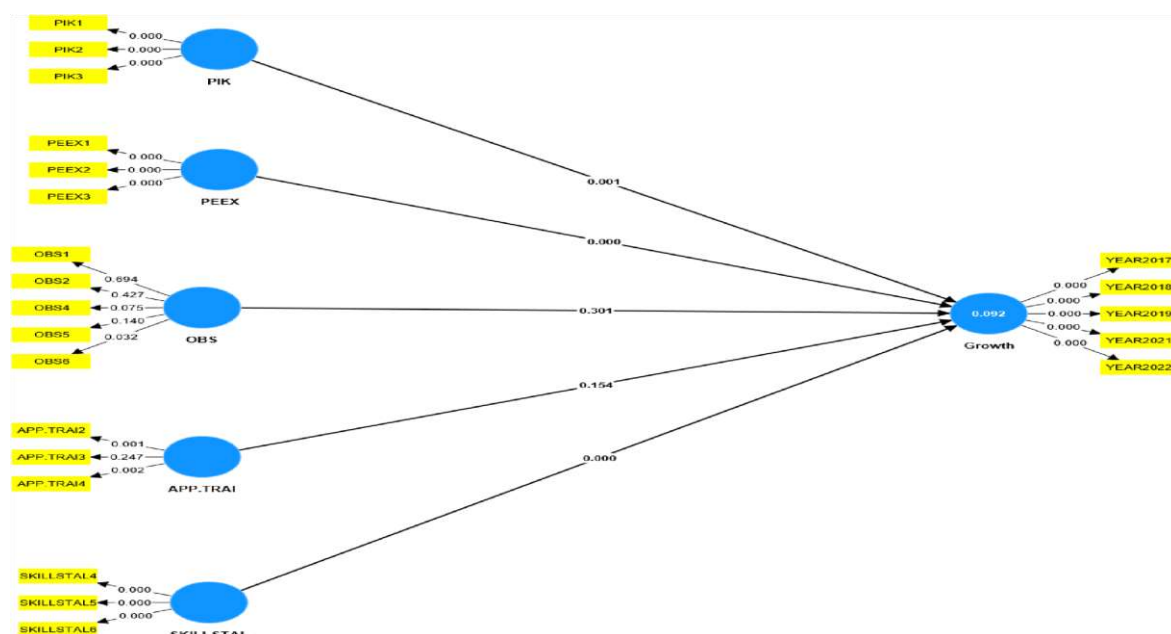
Variables	Cronbach's (standardized)	alpha	Cronbach's (unstandardized)	alpha	Composite reliability (rho_c)
GROWTH	0.889		0.847		0.843
AppTrai	0.668		0.665		0.668

Source: Researcher, 2023

The reliability measures included both standardized and unstandardized Cronbach's alpha, to assess the internal consistency of the constructs. Additionally, the table provides the composite reliability (rho c) values, offering insights into the overall reliability of each variable. Looking at the standardized and unstandardized Cronbach's alpha values, all variables demonstrated high internal consistency, exceeding the conventional threshold of 0.7. Notably, Apprenticeship training exhibits the lowest Cronbach's alpha values (0.668), indicating a robust level of reliability. The composite reliability values (rho_c) reinforce these findings, with all constructs surpassing the recommended threshold of 0.7, further confirming the reliability of the measures.

This suggested that the items within each variable consistently measured the intended apprenticeship training as method of tacit knowledge transfer used by woodwork enterprises. The high reliability scores across all variable, especially for Apprenticeship training (0.790), imply that the measurement items related to, apprenticeship training, and Growth of woodwork manufacturing enterprises are internally consistent and reliable. Thus, there is confidence in the accuracy and stability of the measurements, enhancing the validity of subsequent analyses.

Significance of path coefficients



The coefficients in the structural model, representing the relationships between the constructs, are obtained through the estimation of a set of regression equations. In this study, two models have been examined, providing an analysis of the direct, indirect, and total relationships among the dimensions of apprenticeship training as methods of tacit knowledge transfer and growth of woodwork enterprises.

Hypothesis testing

H₀₁: there is no positive significant relationship between skills acquisition as method of tacit knowledge transfer and growth of woodwork enterprises

H₀₂: there is no positive significant relationship between employee feedback as method of tacit knowledge transfer and growth of woodwork enterprises'

Conclusion and Recommendations

Conclusion

This study investigated Apprenticeship training as method tacit knowledge transfer and growth of woodwork manufacturing enterprises in Olamaboro LGA, Kogi State, Nigeria. The selected woodwork enterprises are in the districts of the environment of the local government.

Recommendations

Based on the findings of this study, the following recommendations are postulated
Woodwork enterprises should encourage apprenticeship training as method of tacit knowledge transfer by ensuring trainees maximally know skills acquired at the place of work and need not to be told of what needs to be done in the place of work.

Trainees as well as apprentices and Employees need to be aware of their working place by developing employee's feedback mechanism and application in order to increase the growth of the enterprises. Woodwork enterprises should pay serious attention to employees feedback of the trainees as well as ensuring such persons are given much needed attention to grow the enterprises, Employees who learn faster because of skills acquired should be able to give feedback over what was learnt and such needs to be integrated into the core part of the enterprises to enable them do better. Besides, employees who can do better jobs than expected can also be left to do the work alone since they are experienced in the work and this enables them to gain more confidence.

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CUSTOMER RELATIONSHIP MANAGEMENT AND ENTREPRENEURIAL COMPETITIVENESS OF MICROFINANCE BANKS IN YENAGOA, BAYELSA STATE

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Abstract

This study investigated the relationship between customer relationship management and entrepreneurial competitiveness in the context of micro-finance banks in Yenagoa, Bayelsa State. The study specifically investigated the relationship between customer relationship practices, customer knowledge management and customer interaction on entrepreneurial competitiveness, measured by innovativeness and proactiveness, in microfinance banks in Yenagoa, Bayelsa State, Nigeria. An Explanatory research design was adopted with a Correlational Study. Data were collected from 70 employees (determined via Taro Yamane formula) using structured questionnaires, achieving a 94% response rate. Pearson Product Moment Correlation, conducted via SPSS version 25.0, tested the relationships between variables. Findings revealed significant positive correlations: customer knowledge management with innovativeness and proactiveness and customer interaction with innovativeness and proactiveness. Customer interaction showed the strongest influence on proactiveness, emphasizing the role of direct engagement. The results align with Social Exchange Theory, highlighting reciprocal benefits, and Resource-Based View Theory, underscoring CRM as a strategic resource. We therefore conclude that customer relationship management significantly improves entrepreneurial competitiveness of firms. The study recommends that enhancing CRM systems for data analytics, training staff in client engagement, and leveraging insights for innovative products.

Keywords: Competitiveness, Customer Relationship Management, Entrepreneurial, Microfinance banks, Yenagoa

Introduction

Microfinance banks play a crucial role in promoting financial inclusion and entrepreneurship in developing economies (Kumar et al., 2020). These banks provide financial services to small-scale entrepreneurs and low-income individuals, contributing to economic growth and poverty reduction (Morduch, 2017). However, the competitiveness of microfinance banks depends on their ability to manage customer relationships effectively and demonstrate entrepreneurial competitiveness. The importance of customer relationship management in microfinance banks cannot be overstated. Customer relationship management involves the

use of technology and business processes to manage customer interactions and data (Chen & Popovich, 2003). By leveraging customer relationship management, microfinance banks can improve customer satisfaction, loyalty, and retention (Kumar et al., 2020). A study by Kumar et al. (2020) found that customer relationship management practices have a positive impact on customer loyalty and retention in Indian microfinance banks.

In recent years, the microfinance banking sector has experienced significant growth and transformation. The sector has expanded rapidly, with the number of microfinance banks increasing substantially (CGAP, 2020). However, this growth has also led to increased competition, making it essential for microfinance banks to differentiate themselves and demonstrate entrepreneurial competitiveness (Morduch, 2017). Entrepreneurial competitiveness is essential for microfinance banks to succeed in a competitive market. Entrepreneurial Competitiveness involves the ability of microfinance banks to innovate, take risks, and respond to changing market conditions (Lumpkin & Dess, 1996). By demonstrating Entrepreneurial Competitiveness, microfinance banks can differentiate themselves, attract new customers, and increase their market share (Kumar et al., 2020). A study by Zhao et al. (2019) found that Entrepreneurial Competitiveness dimensions, such as innovativeness and proactiveness, are critical for the competitiveness of Chinese microfinance banks.

The practice of Customer Relationship Management has presented to marketers including owners of Micro, Small and Medium scale enterprises the need to keep customers and the benefits derived in building long term relationships with customers in today's competitive business environment (Ismail et. al., 2017). The Concept of Customer Relationship Marketing is concerned with business interacting with their customers with the purpose of getting and analyzing the data of customers and using the outcome or results to improve service delivery and attain marketing objectives (Schoder, 2021). The concept identifies the long-term value of potential and actual clients while seeking a growth in revenue, profits and shareholder worth through the activities of marketing which are channeled to the development, conserving and augmenting successful organizational-customer relations (Gronroos, 2020). The activities involved in managing customer relationship include a thorough understanding and appreciation of the fundamental sources of value derived by the firm from customers and what the customers on the other hand gives to the organization. Organizations over the years are beginning to realize that customers have various economic value and importance to the company, and as such are subsequently adapting their customer offerings and communications strategy accordingly. Because of this, organizations are gradually shifting from a product or brand centric marketing to a customer – centric approach.

The strategy aspect of Customer Relationship Management is a multifaceted package containing skills and learning abilities that is practiced through the processes in the organization (Day, 2020). The work of (Morgan et al, 2019) defined Customer Relationship Management strategies as organizational activities or processes that reveal the skills or abilities of a firm with the purpose of constantly creating, sustaining and advancing purposeful relationships with clients. Based on existing literature, the work adopted 4 dimensions of Customer Relationship Management strategy. These were, Customer Knowledge Marketing Strategy (CKMS), Customer Interaction Marketing Strategy (CIMS), Customer Relationship Upgrading Strategy (CRUS), and Customer Win-back Strategy (CWS) (Parvitiyar & Sheth, 2018). A major key in building a firm's competitive advantage is its strategy. The various categories of marketing strategies are considered as a highly significant driver of the performance of businesses (Srivastava, Shervani & Fahey, 2018).

Exceptional Customer Relationship Management strategies have the ability to provide firms with competitive advantage that is very difficult to imitate and also very sustainable (Day, 2020). If a firm is able to adequately use its strategies derived from the relationship with its customers through the various activities of Customer Relationship Management, it can generate and convey greater worth for customers and thus increase its performance.

The relationship between customer relationship management and entrepreneurial competitiveness is complex and not well understood. While customer relationship management practices can provide valuable insights into customer needs and preferences in the literature, it is unclear how these insights can be leveraged to enhance entrepreneurial competitiveness (Chen & Popovich, 2003). Furthermore, the impact of customer relationship management practices on entrepreneurial competitiveness may vary depending on the specific context and market conditions (Kumar et al., 2020). Despite the importance of Customer Relationship Management and Entrepreneurial Competitiveness, there is a lack of understanding and limited literature of how these constructs relate to each other in the context of microfinance banks.

Literature Review

Theoretical Framework

The Social Exchange Theory

Social Exchange Theory is propounded by George C. Homans in 1958. This theory views social interactions as an exchange process where individuals evaluate the benefits and costs of their relationships. Homans proposed that people pursue interactions that offer rewards, such as trust or financial gain, while avoiding those with high costs, like effort or disappointment. Reciprocity is a key mechanism, suggesting that individuals repay benefits received, creating a cycle that sustains relationships over time.

The theory emphasizes trust and commitment as outcomes of positive exchanges. When a firm delivers value such as reliable service or personalized offerings customers reciprocate with loyalty, strengthening the bond. Negative exchanges, like poor service quality, increase perceived costs and may disrupt the relationship. Scholars like Blau (1964) distinguished economic exchanges (immediate, tangible benefits) from social exchanges (long-term, intangible gains), highlighting how firms build enduring ties through consistent value delivery.

Power dynamics and equity also shape these exchanges. A firm with superior resources may influence the relationship, but mutual benefit is essential for stability. Customers are more likely to stay engaged if they perceive fairness in what they give and receive. In a business context, this theory explains how firms cultivate customer retention by balancing offerings with returns, fostering a reciprocal relationship that enhances organizational outcomes.

The relevance of Social Exchange Theory to this research lies in its explanation of how Customer Relationship Management (CRM) enhances Entrepreneurial Competitiveness (EC) in microfinance banks. CRM practices, like customer interaction and knowledge management, create exchanges where banks offer value (e.g., tailored services) and customers respond with loyalty. This reciprocity supports innovativeness by informing new

product development and proactiveness by enabling banks to anticipate needs, aligning with the study's aim to link CRM to competitive outcomes.

Resource-Based View Theory (RBV)

Resource-Based View (RBV) Theory was propounded by Birger Wernerfelt in 1984 and further developed by Jay Barney in 1991. This theory argues that a firm's competitive advantage arises from its unique resources and capabilities, which must be valuable, rare, inimitable, and non-substitutable. Wernerfelt saw firms as collections of resources like technology or data that, when leveraged effectively, outperform competitors. Barney added that sustained advantage requires resources that rivals cannot replicate, focusing on internal strengths over external factors. RBV posits that strategic resource use creates differentiation. For instance, a microfinance bank with advanced CRM tools can tailor services using customer data, setting it apart from less-equipped competitors. Capabilities, such as innovation or adaptability, transform these resources into market advantages. Unlike market-focused theories, RBV emphasizes internal resource management as the driver of success, making it relevant for firms in competitive or evolving sectors.

The theory has evolved to address dynamic environments, where resources must be continually refined. In microfinance, customer knowledge and interaction systems enable innovation and quick responses to change. RBV suggests that protecting and enhancing these assets through upgrades or training ensures lasting competitiveness. This internal perspective is key for understanding how firms maintain an edge in rapidly growing industries. The relevance of RBV Theory to this research is its framing of CRM as a strategic resource for Entrepreneurial Competitiveness in microfinance banks. CRM systems and practices provide valuable, hard-to-imitate capabilities that drive innovativeness (e.g., new financial products) and proactiveness (e.g., early market responses). By exploring CRM as a resource, the study can show how microfinance banks leverage it to enhance EC, supporting the hypotheses linking customer management to competitive success.

The Concept of Customer Relationship Management

Customer relationship management can be traced down to the concept of the literature of relationship marketing. The concept of relationship marketing as introduced by Leonard Berry in the early 1980s, was defined to mean, attracting, maintaining, and enhancing customer relationships (Berry, 2022). Relationship marketing in the field of business practice and academic research has major growth in the past decade (Srinivasan & Moorman 2015). (Morgan and Hunt, 2014) defines relationship marketing as "all marketing activities directed towards establishing, developing, and maintaining successful relational exchanges. The findings from several research has indicated that relationship marketing if well practiced generates stronger customer relationships that boost the performance of sellers in terms of their sales outcomes, market share and overall profit profits (Srinivasan & Moorman 2015). Researchers also in their findings have again indicated that relationship marketing sometimes have a negative impact on the performance of organizations (De Wulf, Odekerken- Schroder, & Iacobucci 2021).

This gives an indication that the usefulness of relationship marketing activities may differ as a result of explicit policy and exchange framework. The difference in performance suggests

that there is the need for a system that can merge all empirical studies and fully appreciate the creation and sustenance of stronger relationship performance (Reinartz & Kumar 2019). The concept of Relationship marketing generally bridges the gap amongst the buyer and the seller and it should be marked by trust, commitment, communication and promise fulfillment (Gummesson, 2019).

From the consumer's point of view, trust according to Cottrel (2015), means serving the desired product at the right price and at the same time ensuring an ongoing relationship between the customer and the business to generate mutual benefits for both parties involved. Moorman *et al.* (2019) considers commitment as a compliment in the relationship between the buyer and the seller. Commitment is a key tool for distinguishing between those who stay and those who leave (Wilson & Munmalananeni, 2016). Commitment looks at the essential variable for stronger relationship marketing and also a useful tool to measure how loyal customers are (Morgan & Hunt, 2019). Allen and Meyer (2019) mentioned that commitment can be an "Affective or sentimental" "calculative" and "normative" correspondingly. The work also indicated that affective commitment reflects how a person is sentimentally affiliated to, empathize with and involved in the activities of an organization. So, affective commitment helps to ensure that the customer remains or stays with the organization as a result of a strong bond with the organization.

Fulfilling promise made to the customer according to Groonroos (2019) is a major key to building stronger relationship. An organization mostly seek out for new customers by giving customers some form of promise, however, if the promise is breached by the organization, it strongly affect the developing and maintenance of growing association. A promise fulfilling has significant contribution in providing high level customer satisfaction which leads to customer loyalty and as such profitability.

The Concept of Entrepreneurial Competitiveness

Entrepreneurial competitiveness refers to the ability of a firm to innovate, take risks, and respond to changing market conditions in order to achieve a competitive advantage (Hitt et al., 2019). It involves the firm's ability to identify and capitalize on new business opportunities, to innovate and improve existing products and services, and to build strong relationships with customers and suppliers (Zahra et al., 2018). Entrepreneurial competitiveness is critical for firms operating in today's fast-paced and rapidly changing business environment (Kuratko et al., 2017). Firms that are able to innovate and adapt quickly to changing market conditions are more likely to achieve long-term success and sustainability (Hitt et al., 2019). On the other hand, firms that fail to innovate and adapt may struggle to survive in a rapidly changing business environment (Zahra et al., 2018).

Tsourveloudis and Valavanis (2002) defined organizational competitiveness as the capability of an organization to operate at ease in a swiftly changing business environment by offering high quality products to the market. It has to do with the ability of an organization to effectively and efficiently utilize the available resources in the organization to meet the ever changing needs of the business environment (Park, 2011). It therefore, assists the firm in carrying out its operations lucratively, as well be able to manage opportunities and threats coming from the environment (Ardichvile, Cardozob & Rayc, 2003).

Organizational competitiveness is an organization's capability in looking forward to, sensing, and responding to instability in the firm's business environment so as to gain advantage

competitively and enhance organizational performance. It is a specific way, firms apply to attain and enhance advantage competitively so as to be in the same pace with frequent and nonstop changes in the business environment (Nejatian and Zarei, 2013; Khoshlahn and Ardabili, 2016). Any business firm that has been able to develop Competitiveness will be able to operate successfully in exceedingly hyper competitive environments through the continuous adaptation to environmental changes. In today's knowledge economy, talent vis-à-vis skill and knowledge especially that of the entrepreneur is an important driver of organizational success. In this new business environment talent has become a significant factor in improving the performance of the organization and its capability to adapt effectively to changes in the environment.

Firms with a strong EO are more likely to engage in entrepreneurial behaviors and to achieve entrepreneurial competitiveness (Kuratko et al., 2017). Moreover, entrepreneurial competitiveness is also influenced by the firm's internal environment, including its culture, structure, and resources (Zahra et al., 2018). Firms with a strong entrepreneurial culture, a flexible structure, and access to resources are more likely to achieve entrepreneurial competitiveness (Hitt et al., 2019).

Entrepreneurial competitiveness is also influenced by the firm's external environment, including its industry, market, and competitors (Kuratko et al., 2017). Firms that operate in dynamic and competitive industries must be able to innovate and adapt quickly in order to achieve entrepreneurial competitiveness (Hitt et al., 2019). Entrepreneurial competitiveness can be measured using a variety of metrics, including innovation, risk-taking, proactiveness, and firm performance (Rauch et al., 2019). Firms that score high on these metrics are more likely to achieve entrepreneurial competitiveness and to achieve long-term success and sustainability (Zahra et al., 2018).

Conceptual Framework of Study variables

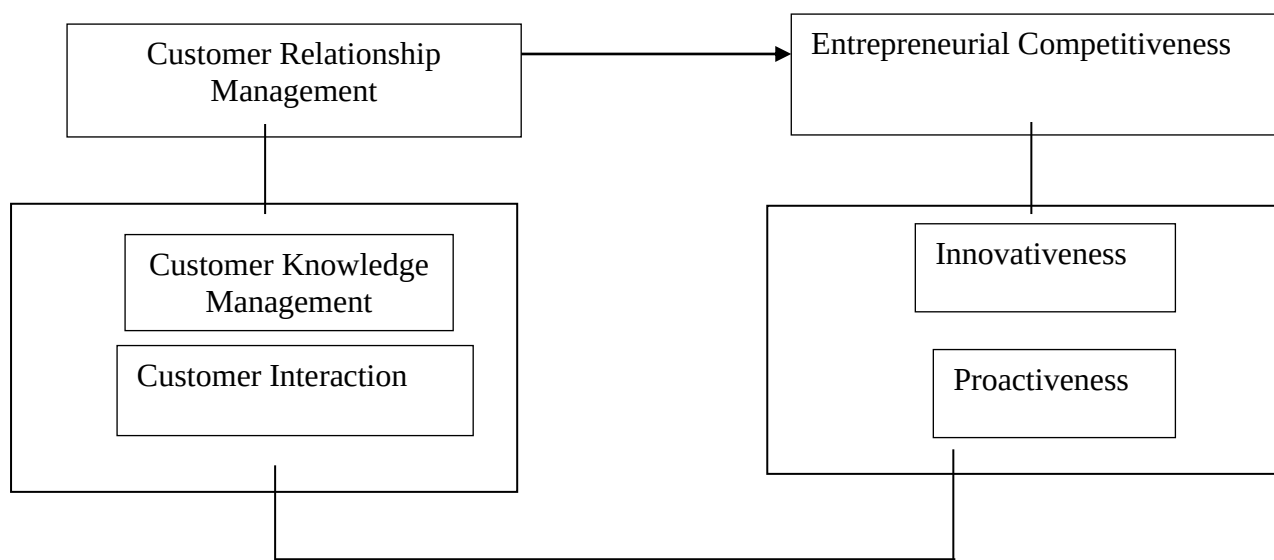


Fig 1 Conceptual Framework of the Relationship between Relationship Management and Entrepreneurial Competitiveness

Source: Wang and Feng (2018)

Empirical Review

Velnampy and Sivesan (2022) have conducted a study on Customer Relationship Marketing and Customer Satisfaction a study on Mobile Service Providing Companies in Sri Lanka. A sample of one hundred and seven customers was surveyed from three mobile service providing companies such as Airtel, Dialog, and Mobitel. Correlation and regression analyzed has been employed to measure relationship and contribution among the dependent and independent variables. The finding reveals a positive and significant relationship between relationships marketing and customer satisfaction.

Mohammad (2021) this research aimed to empirically investigate the impact of relationship marketing underpinnings (namely trust, commitment, communication, conflict handling, bonding, shared values, empathy, and reciprocity) on customer loyalty in the banking industry. A survey was conducted, collecting data through a questionnaire containing 34 items that was completed by 384 randomly selected bank customers and multiple regression analysis was used for data analysis. The results revealed that the all underpinnings of relationship marketing were directly associated with customer loyalty and they had a significant effect on it. Therefore, it is reasonable to conclude that customer loyalty can be created, reinforced and retained by marketing plans aimed at building trust, demonstrating commitment to service, communicating with customers in a timely, reliable and proactive fashion, handling conflict efficiently, paying attention to shared values, improving the empathetic and reciprocal abilities of the salespeople, and developing strong bonds between buyers and sellers.

Seyyedeh (2021) have investigated on relationship between relationship marketing and customer loyalty case study on Pasargad bank in Mazandran province. Sample size is determined using Cochran Sampling method which the statistical sample is 352 of these bank customers which have been selected through the simple random sampling method. In order to analyze the data resulted from collected questionnaires deductive and descriptive statistical methods are used. Finding show that correlation results have a positive relationship between trust, commitment, communication, conflict management and competence as independent variable and customer loyalty as dependent variable. Therefore, as the level of trust, commitment, communication, conflict management and competence increase the customer loyalty.

Nketiah (2016), observes the role of competitive intensity in moderating the relationship between Customer Relationship Management (CRM) capability and firm performance. In order to achieve this, 400 structured questionnaires were conveniently distributed to owners, managers and executives of MSMEs in Ashanti region. 400 responses were retrieved and analyzed quantitatively using Stata and SPSS. Mean analysis, correlation analysis and Hierarchical Linear Modeling (HLM) regression were the main analysis used in deriving the findings from the research. Findings from the research indicate that firms in the sector have the capabilities of managing customer information knowledge and winning them back. However, upgrading customer relationship is on the average in the sector. It was also found from the correlation and HLM regression that CRM capabilities do have a positive impact on firm performance whiles controlling for period of working in the business and the type of business. The work also indicated that the introduction of competitive intensity as a moderating variable saw a change in performance in the effect of CRM capabilities and performance.

Elmubasher (2020), examine the relationship between CRM dimensions and organizational performance, and use of this relationship to answer the following question “to what extent is the CRM dimensions (customer orientation, CRM organization, knowledge management and technology based CRM) could affect organizational performance?” The data collection utilized quantitative methods. Questionnaires were distributed to 286 customers. ANOVA, regression analysis were used to analyze the data collected. The result of this research showed that the implementation of CRM dimensions is more likely to improve organizational performance. In multiple regression analysis. The findings of the study contribute enormously to the body of knowledge, as it provides a model to be used for explaining the effect of the CRM four dimensions on organizational performance.

Nguyen (2023) conducted a study titled "Factors affecting the successful implementation of customer relationship management in 3-to-5-star hotels in Vietnam," published in *Tourism and Hospitality Research*. The research aimed to identify how CRM practices, including data-driven strategies, influence customer retention and satisfaction in mid-tier and upscale hotels. Using a quantitative approach, they surveyed 350 hotel managers and guests across Vietnam, employing structural equation modeling (SEM) to analyze relationships between CRM adoption, personalization, and customer outcomes. Findings revealed that data-driven CRM significantly increased retention by 20%, with personalization and responsive customer care identified as key mediators.

Chen (2023) explored "The impact of data-driven marketing on customer loyalty in the hospitality industry" in *Journal of Hospitality and Tourism Management*. Their objective was to assess how analytics-based marketing influences loyalty among hotel guests in China. The study adopted a mixed-methods design, combining surveys of 400 guests with interviews of 15 hotel marketers, and used regression analysis to test the effect of targeted campaigns on loyalty metrics like repeat visits and referrals. Results showed that data-driven marketing improved loyalty by 18%, with communication effectiveness playing a critical role in guest retention. Kim and Lee (2022) investigated "Personalization strategies and their effects on customer retention in mid-tier hotels" in *International Journal of Hospitality Management*. The study sought to examine how personalized services impact retention in three-star hotels across South Korea. Employing a quantitative methodology, they collected data from 300 guests via questionnaires and analyzed it using multiple regression analysis to explore the link between personalization (e.g., tailored offers) and retention rates. Their findings indicated that personalization increased retention by 15%, with customer satisfaction as a significant mediator.

Ogba et al., (2022) examined "Digital Marketing and Consumer Behavioral Pattern of Fast Food Business Enterprises in Yenagoa, Bayelsa State," published in *European Journal of Hospitality and Tourism Research*. The study aimed to determine how digital marketing influences consumer loyalty in Yenagoa's fast-food sector, with implications for related industries like hospitality. Using a survey method, they gathered responses from 250 customers and applied descriptive statistics and correlation analysis to assess the relationship between marketing strategies and loyalty. Results showed that data-informed digital campaigns increased loyalty by 22%, driven by targeted promotions and communication. Zhang (2021) researched "The role of customer relationship management in enhancing customer patronage in budget hotels" in *Journal of Travel & Tourism Marketing*. The study's objective was to investigate how CRM practices affect patronage in budget hotels in the United States. They employed a quantitative approach, surveying 320 guests and using factor analysis and SEM to evaluate the impact of CRM elements like customer care and

communication on patronage indicators (repeat visits, advocacy). Findings revealed that effective CRM increased patronage by 17%, with customer care emerging as the strongest predictor.

Materials and Method

This study employed the cross-sectional survey research design. The explanatory research design was adopted with a correlational method of investigation. The population of the study was the eighty five (85) employees of the micro-finance banks operating in Yenagoa, Bayelsa State. A sample size of seventy (70) was used with the aid of the Taro Yamane sample size determination model. A simple random sampling was used to select members for the study. Primary data was employed for the study, the structured questionnaire which was designed into five-point likert type scale from a scale of 5-1 was used to capture employee's responses. This instrument was validated with a pilot study and the confirmatory factor analysis the Chronbach's alpha reliability coefficient. Seventy (70) copies of the questionnaire were distributed and of the returned questionnaire only sixty six copies were validly used for the study's analysis. The methods of data analysis involves the employment of univariate and bivariate statistics. The mean, standard deviation and variance were used for the univariate analysis while the Pearson Product Moment correlation (PPMC) was employed for the bivariate analysis. All statistics were aided with the statistical package for social sciences (SPSS), version 25.0.

Results and Discussion

Demographic Analysis

Table 1: Demographic Information of Respondents

Variables	Frequency	Percentage (%)
Questionnaire Distributed	70	100
Questionnaire validly used	66	94
Questionnaire unused	4	6
Gender		
Male	34	52
Female	32	48
Total	66	100
Age (Years)		
18-25	10	15
26-30	20	30
31-35	22	33
36-40	10	15
Above 40	4	6
Total	66	100
Working Experience (Years)		
Less than 1 years	8	12
1 -2	14	21
3 – 5	26	39
Above 5	18	27
Total	66	100

Source: Research Data, 2025

Table 1 illustrates the demographics of respondents. The field reports shows that from the 70 copies of the questionnaire distributed, only 66 copies were validly used for the study. Gender distribution is nearly balanced, with 52% male (34) and 48% female (32), ensuring diverse perspectives. The age distribution shows 33% (22) aged 31–35 years and 30% (20)

aged 26–30 years, indicating a young, dynamic workforce familiar with CRM practices. Educationally, 52% (34) held BSc/HND degrees, and 15% (10) had MSc/PhD qualifications, reflecting a well-educated sample capable of assessing competitiveness. Regarding work experience, 39% (26) had 3–5 years, and 27% (18) had over 5 years, suggesting experienced respondents knowledgeable about microfinance operations. This demographic profile aligns with the study's focus on employees engaged in CRM and competitiveness in Yenagoa's microfinance sector.

Bivariate Analysis

Test of Hypothesis 1

- Ho₁ There is no significant relationship between customer knowledge management and innovativeness of micro-finance banks in Yenagoa, Bayelsa State
- H_{A1} There is significant relationship between customer knowledge management and innovativeness of micro-finance banks in Yenagoa, Bayelsa State

Table 2: Customer Knowledge Management and Innovativeness.

Correlations				Customer Knowledge Management	Innovativeness
Spearman's rho	Customer Management	Knowledge	Correlation	1.000	.682**
			Coefficient		
			Sig. (2-tailed)	.	.045
	Innovativeness		N	66	66
			Correlation	.682**	1.000
			Coefficient		
			Sig. (2-tailed)	.045	.
			N	66	66

**. Correlation is significant at the 0.05 level (2-tailed).

Source: Spss output, version 25.0 (2025)

The Spearman correlation coefficient ($r = 0.682$, $p = 0.045 < 0.05$) indicates a strong positive relationship between customer knowledge management and innovativeness. Systematic data collection and feedback analysis inspire innovative products, enhancing competitiveness. The p-value (0.045) is below 0.05, rejecting the null hypothesis and accepting the alternative that customer knowledge management significantly impacts innovativeness. The sample size ($N = 66$) ensures reliability. This aligns with Ahmad and Suffian (2021), who found knowledge management drives innovation.

Test of Hypothesis 2

- Ho₂ There is no significant relationship between customer knowledge management and proactiveness of micro-finance banks in Yenagoa, Bayelsa State
- H_{A2} There is significant relationship between customer knowledge management and proactiveness of micro-finance banks in Yenagoa, Bayelsa State

Table 3: Customer Knowledge Management and Proactiveness

Correlations				Customer Knowledge Management	Proactiveness
Spearman's rho	Customer Management	Knowledge	Correlation Coefficient	1.000	.705**
			Sig. (2-tailed)	.	.009
			N	66	66
	Proactiveness		Correlation Coefficient	.705**	1.000
			Sig. (2-tailed)	.009	.
			N	66	66

** . Correlation is significant at the 0.01 level (2-tailed).

Source: Spss output, version 25.0 (2025)

The Spearman correlation coefficient ($r = 0.705$, $p = 0.009 < 0.01$) shows a strong positive relationship between customer knowledge management and proactiveness. Client insights enable banks to anticipate needs, fostering proactive strategies. The p-value (0.009) is below 0.01, rejecting the null hypothesis and accepting the alternative that customer knowledge management significantly impacts proactiveness. The sample size ($N = 66$) supports reliability. This corroborates Li and Calantone (2018), who linked knowledge to proactive strategies.

Test of Hypothesis 3

H_{03} There is no significant relationship between customer interaction and innovativeness of micro-finance banks in Yenagoa, Bayelsa State

H_{A3} There is significant relationship between customer interaction and innovativeness of micro-finance banks in Yenagoa, Bayelsa State

Table 4: Customer Interaction and Innovativeness

Correlations				Customer Interaction	Innovativeness
Spearman's rho	Customer Interaction		Correlation Coefficient	1.000	.694**
			Sig. (2-tailed)	.	.042
			N	66	66
	Innovativeness		Correlation Coefficient	.694**	1.000
			Sig. (2-tailed)	.042	.
			N	66	66

** . Correlation is significant at the 0.01 level (2-tailed).

Source: Spss output, version 25.0 (2025)

The Spearman correlation coefficient ($r = 0.694$, $p = 0.042 < 0.05$) demonstrates a strong positive relationship between customer interaction and innovativeness. Personalized communication and training sessions inspire innovative services. The p-value (0.042) is below 0.05, rejecting the null hypothesis and accepting the alternative that customer interaction significantly impacts innovativeness. The sample size ($N = 66$) enhances reliability. This supports Kumar et al. (2013), who found interaction drives innovation.

Test of Hypothesis 4

- Ho₄ There is no significant relationship between customer interaction and proactiveness of micro-finance banks in Yenagoa, Bayelsa State
- H_{A4} There is significant relationship between customer interaction and proactiveness of micro-finance banks in Yenagoa, Bayelsa State

Table 4.5: Customer Interaction and Proactiveness Correlations

		Customer Interaction	Proactiveness
Spearman's rho	Customer Interaction	Correlation Coefficient	1.000
		Sig. (2-tailed)	.721**
		N	66
	Proactiveness	Correlation Coefficient	.721**
		Sig. (2-tailed)	.000
		N	66

** . Correlation is significant at the 0.01 level (2-tailed).

Source: SPSS output, version 25.0 (2025)

The Spearman correlation coefficient ($r = 0.721$, $p = 0.000 < 0.001$) indicates a strong positive relationship between customer interaction and proactiveness, the strongest among tested relationships. Proactive engagement enhances market responsiveness. The p-value (0.000) is below 0.001, rejecting the null hypothesis and accepting the alternative that customer interaction significantly impacts proactiveness. The sample size ($N = 66$) ensures reliability. This aligns with Gummerus et al. (2012), who linked interaction to proactive strategies.

Discussion of Findings

The findings provide robust insights into how Customer relationship management practices influence entrepreneurial competitiveness in Yenagoa's microfinance banks, aligning with the study's objectives and theoretical frameworks. The expanded discussion below delves into the implications, contextual nuances, and theoretical connections, offering a deeper understanding of the results.

The strong positive relationship ($r = 0.682$, $p < 0.05$) between customer knowledge management and innovativeness (mean = 4.05–4.12) underscores the critical role of data-driven strategies in fostering innovation. Respondents strongly agreed that analyzing client feedback and repayment patterns inspires new loan products and services, enhancing competitiveness. This finding aligns with Ahmad and Suffian (2021), who noted that structured customer knowledge enables firms to develop tailored offerings. In Yenagoa's context, where micro-entrepreneurs demand flexible financial solutions, banks leveraging client data can innovate products like group loans or digital savings plans. Social Exchange Theory explains this relationship, as banks deliver value through innovative offerings, and clients reciprocate with loyalty, sustaining the exchange. Resource-Based View (RBV) Theory further frames customer knowledge as a rare, inimitable resource that differentiates banks, particularly in a semi-urban market with limited advanced analytics. However, the slightly lower mean for technology-driven innovation (4.05) suggests resource constraints, such as outdated CRM systems, may limit banks' ability to fully exploit data, a challenge common in developing economies (Morduch, 2017).

The significant relationship ($r = 0.705$, $p < 0.01$) between customer knowledge management and proactiveness (mean = 4.12–4.18) highlights how client insights enable banks to anticipate market needs. Respondents agreed that data on financial needs and behavior changes allows banks to offer services like mobile banking before competitors. This aligns with Li and Calantone (2018), who found knowledge management supports proactive strategies. In Yenagoa, where digital adoption is growing, proactive banks can capture market share by addressing emerging demands, such as digital payments. Social Exchange Theory suggests that anticipating client needs fosters trust, reinforcing long-term relationships. RBV Theory positions knowledge management as a capability that enables swift market responses, giving banks a competitive edge. The slightly lower mean for anticipating behavior changes (4.12) may reflect limited predictive analytics, indicating a need for investment in advanced tools to enhance proactiveness.

The strong positive relationship ($r = 0.694$, $p < 0.05$) between customer interaction and innovativeness (mean = 4.05–4.12) emphasizes the role of direct engagement in driving innovation. Respondents strongly agreed that personalized communication and training sessions provide insights for new services, supporting Kumar et al. (2013). In Yenagoa, where personal relationships influence client trust, interactions like financial literacy workshops can inspire innovative offerings, such as youth-focused savings plans. Social Exchange Theory frames these interactions as reciprocal exchanges, where banks offer value through engagement, and clients provide feedback that fuels innovation. RBV Theory views interaction capabilities as strategic assets, hard to replicate due to their reliance on skilled staff and client rapport. The lower mean for technology-driven innovation (4.05) suggests that while interactions generate ideas, translating them into technological solutions may be hindered by resource limitations, a common issue in microfinance (Kumar et al., 2020).

The strongest relationship ($r = 0.721$, $p < 0.001$) between customer interaction and proactiveness (mean = 4.12–4.18) highlights the pivotal role of engagement in enabling banks to stay ahead of market trends. Respondents agreed that prompt responses and proactive outreach, such as follow-up calls, enhance competitiveness by addressing client needs swiftly. This aligns with Gummerus et al. (2012), who linked interaction to market responsiveness. In Yenagoa's competitive microfinance sector, banks that engage proactively—through digital channels or community events—can anticipate trends like demand for micro-insurance, gaining first-mover advantages. Social Exchange Theory explains this as a cycle of mutual benefit, where proactive engagement builds trust, encouraging client retention. RBV Theory positions interaction as a dynamic capability, enabling banks to adapt quickly in a volatile market. The high mean for staying ahead of trends (4.18) reflects Yenagoa's growing digital infrastructure, which supports real-time engagement, though challenges like inconsistent training (mean = 4.15) suggest a need for standardized program

Conclusion

The study concludes that CRM practices significantly enhance entrepreneurial competitiveness in Yenagoa's microfinance banks. Customer interaction, particularly, has the strongest impact on proactiveness, followed by its influence on innovativeness, while customer knowledge management supports both dimensions. These findings align with Social Exchange Theory, emphasizing reciprocal benefits in client relationships, and RBV Theory, framing CRM as a strategic resource. The study provides actionable insights for microfinance banks in Yenagoa, Bayelsa State to strengthen competitiveness, promote financial inclusion, and support entrepreneurship in Yenagoa's evolving market.

Conclusion and Recommendations

The following recommendations were made;

1. Banks should invest in advanced CRM tools to improve data collection and analysis, enabling tailored products and proactive strategies that enhance innovativeness and market responsiveness.
2. Regular training programs should be implemented to equip staff with skills in personalized communication and proactive outreach, strengthening client loyalty and competitiveness.
3. Banks should use client feedback and repayment data to develop innovative financial products, such as digital savings or micro-insurance, addressing Yenagoa's unique market needs.
4. Banks should integrate digital platforms, like mobile apps and social media, to enhance real-time client engagement, supporting proactiveness in a growing digital economy.

Theoretical/Practical Implications

The theoretical implication of this study is that, academics, researchers and students in the field of relationship management, relationship marketing, customer management, entrepreneurship marketing and competitiveness will find this work as a valuable reference material for study and development. The practical and managerial implication of this study is that, the study will guide managerial decision making in customer engagement, competitive management particularly, for the entrepreneurial organizations.

Suggestions for Further Studies

Researchers can conduct longitudinal studies to examine the long-term impact of CRM on entrepreneurial competitiveness in Yenagoa's microfinance sector. Investigate additional CRM dimensions, such as technology-based CRM or customer win-back strategies, on competitiveness in Nigeria's microfinance market. Compare CRM's effects across urban (e.g., Lagos) and semi-urban (e.g., Yenagoa) contexts to enhance generalizability. Explore the role of external factors, such as regulatory policies or digital infrastructure, in moderating CRM's influence on competitiveness.

This study can be replicated in other cities in Nigeria researchers can also carry out a national study on the study constructs, researchers can introduce technology as a mediating variable between customer relationship management and entrepreneurial competitiveness in future studies.

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BUSINESS EDUCATION PROGRAMMES, ENTREPRENEURIAL MINDSET AND FINANCIAL ACUMEN AMONG FINAL-YEAR UNDERGRADUATES AT LAGOS STATE UNIVERSITY

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Abstract

This study examined the influence of Business Education programmes on the entrepreneurial mindset and financial acumen of final-year undergraduate students at Lagos State University. A descriptive survey research design was adopted. The population comprised seventy-nine (79) final-year Business Education students, and a census sampling technique was employed to include all members of the population. Of the 79 questionnaires administered, 71 were duly completed and found usable for analysis, representing a response rate of 89.9%. Data were collected using a structured questionnaire based on a four-point Likert scale. The mean and standard deviation were used to answer the research questions, and a one-sample t-test was used to test the hypotheses at the 0.05 level of significance. The findings, based on the 71 valid responses, revealed that Business Education programmes significantly influence students' entrepreneurial mindset by enhancing entrepreneurial thinking, creativity, opportunity recognition, and practical business skills. The findings further showed that the programmes significantly improve students' financial acumen, particularly in budgeting, financial decision-making, financial planning, and cost management. The study concluded that Business Education programmes contribute significantly to the development of an entrepreneurial mindset and financial acumen among undergraduates. It was recommended that universities strengthen practical entrepreneurship training and financial literacy education to better prepare students for self-employment and effective business management.

Keywords: Business education, Entrepreneurial mindset, Entrepreneurship education, Financial acumen, Lagos State, Undergraduate students

Introduction

Entrepreneurship has become a critical driver of economic growth, innovation, job creation, and sustainable development in both developed and developing economies. In an increasingly competitive and knowledge-driven global economy, higher education institutions are expected to produce graduates who possess not only disciplinary knowledge but also entrepreneurial competencies and financial capabilities that enable them to identify

opportunities, create value, establish enterprises, and adapt to rapidly changing labour market conditions. Consequently, universities worldwide have intensified efforts to integrate entrepreneurship education into their curricula to prepare graduates for self-employment, enterprise creation, and lifelong economic productivity.

Business Education plays a strategic role in achieving these objectives by combining theoretical knowledge with practical business and entrepreneurial skills required for effective participation in the modern economy. The programme is designed to develop graduates who possess managerial, accounting, marketing, communication, and entrepreneurial competencies necessary for employment, self-employment, and business ownership. Beyond preparing students for paid employment, Business Education seeks to cultivate an entrepreneurial mindset and strengthen financial acumen, thereby enabling graduates to recognise business opportunities, make informed financial decisions, manage resources effectively, and establish sustainable enterprises that contribute to national economic development.

Despite the growing emphasis on entrepreneurship education globally, graduate unemployment remains a significant challenge, particularly in developing countries where the supply of university graduates continues to exceed available formal employment opportunities. According to the International Labour Organisation (ILO, 2024), young graduates are disproportionately affected by unemployment and underemployment, highlighting the need for higher education institutions to equip students with entrepreneurial competencies that enhance employability and promote business creation. This global concern has shifted universities' focus from producing job seekers to developing innovative graduates capable of creating employment opportunities for themselves and others.

The situation is particularly evident in Nigeria, where graduate unemployment and underemployment have remained persistent socio-economic challenges despite continuous expansion in university education. Recent labour market statistics from the National Bureau of Statistics indicate that unemployment and labour underutilization remain significant concerns among young people, with many university graduates experiencing prolonged transitions from school to work due to limited employment opportunities and persistent skills mismatches. These realities have reinforced the need for universities to produce graduates equipped with entrepreneurial competencies, practical business skills, and financial capabilities necessary for successful participation in the evolving economy.

Recognising the importance of entrepreneurship in addressing graduate unemployment, the Federal Government of Nigeria, through the National Universities Commission (NUC), made entrepreneurship education a compulsory component of university education. The policy seeks to equip undergraduates with entrepreneurial knowledge, practical skills, creativity, innovation, and problem-solving abilities required for self-employment and enterprise development. More recently, the National Universities Commission has strengthened this agenda through initiatives such as the National Graduate Employability Framework, which aims to improve graduates' entrepreneurial competencies, workplace readiness, digital literacy, innovation, and employability in response to changing labour market demands.

Although these policy initiatives represent significant progress, empirical evidence suggests that the outcomes of entrepreneurship education in Nigerian universities remain inconsistent. Several recent studies have reported that entrepreneurship education positively influences students' entrepreneurial intention, self-efficacy, opportunity recognition, innovation, and

employability skills. However, other studies indicate that many graduates still lack the practical entrepreneurial competencies required to initiate and sustain successful business ventures due to inadequate experiential learning opportunities, limited access to entrepreneurial support systems, insufficient practical training, weak university-industry collaboration, and inadequate funding for entrepreneurship programmes. Consequently, concerns remain about the effectiveness of existing Business Education programmes in preparing graduates adequately for entrepreneurial careers.

Financial capability has also emerged as an important determinant of entrepreneurial success. Beyond generating innovative business ideas, entrepreneurs require sound financial knowledge and decision-making skills to ensure the sustainability and growth of their enterprises. Financial acumen refers to an individual's ability to understand financial concepts, interpret financial information, prepare budgets, manage cash flow, evaluate investment opportunities, utilise financial statements, and make sound economic decisions. These competencies are essential for efficient resource management, business planning, financial sustainability, and long-term entrepreneurial success.

However, empirical studies conducted among Nigerian university students suggest that financial literacy and financial management skills remain relatively low to moderate despite exposure to entrepreneurship and business-related courses. Many undergraduates experience difficulties in budgeting, savings management, investment planning, credit management, and financial decision-making, thereby limiting their preparedness for entrepreneurship and effective personal financial management. These findings suggest that exposure to entrepreneurship education alone may not be sufficient unless supported by comprehensive Business Education programmes that intentionally develop students' financial competence alongside entrepreneurial capabilities.

Within this context, Business Education occupies a unique position because of its interdisciplinary curriculum, which integrates entrepreneurship, accounting, finance, marketing, office technology and management, business communication, economics, and management studies. At Lagos State University, the Business Education programme is designed to equip students with theoretical knowledge, technical competencies, practical skills, and entrepreneurial experiences required for productive engagement in business and economic activities. Through classroom instruction, practical laboratory experiences, industrial training, business simulations, project-based learning, and entrepreneurship education, the programme is expected to nurture graduates who possess both entrepreneurial orientation and financial competence required for successful career development.

Nevertheless, despite these curricular provisions, limited empirical evidence exists on the extent to which Business Education programmes influence the entrepreneurial mindset and financial acumen of undergraduate students, particularly among final-year students, who are expected to have completed most of the programme requirements. While previous studies have examined entrepreneurship education, entrepreneurial intention, financial literacy, graduate employability, and business competence independently, relatively few studies have simultaneously investigated how Business Education programmes influence both entrepreneurial mindset and financial acumen among final-year undergraduates within the Nigerian university context. This gap in the literature creates the need for further empirical investigation.

Examining this relationship is particularly important because entrepreneurial mindset and financial acumen are complementary competencies required for successful enterprise development, effective financial management, and sustainable economic participation. Graduates who possess these competencies are more likely to identify business opportunities, establish viable enterprises, manage financial resources prudently, withstand business uncertainties, and contribute to employment generation and national economic development. Conversely, deficiencies in these competencies may limit graduates' ability to achieve entrepreneurial success and financial sustainability despite possessing academic qualifications.

Against this background, this study examines the influence of Business Education programmes on the entrepreneurial mindset and financial acumen of final-year undergraduate students at Lagos State University. The findings of the study are expected to contribute to the existing body of knowledge on Business Education and entrepreneurship, while providing useful evidence for curriculum developers, university administrators, policymakers, educators, and other stakeholders on strategies for strengthening Business Education programmes to produce graduates with the entrepreneurial and financial competencies required for sustainable national development.

Statement of the Problem

Entrepreneurship education has become an integral component of university education in Nigeria with the expectation that graduates will acquire the entrepreneurial competencies and financial capabilities necessary for self-employment, business creation, and sustainable economic participation. Accordingly, Business Education programmes are expected to produce graduates with an entrepreneurial mindset and adequate financial acumen by integrating entrepreneurship courses, accounting, finance, management, and other practical business-related learning experiences.

Despite these expectations and the increasing investment in entrepreneurship education, questions remain regarding the extent to which Business Education programmes achieve their intended outcomes. While previous studies have reported positive relationships between entrepreneurship education and variables such as entrepreneurial intention, self-efficacy, employability, and financial literacy, findings remain inconsistent regarding the extent to which university programmes translate classroom learning into the development of an entrepreneurial mindset and practical financial competence. Moreover, many existing studies have focused on entrepreneurship education in general or examined students across different disciplines without specifically evaluating Business Education programmes as a distinct field of study.

At Lagos State University, the Business Education programme incorporates entrepreneurship-related courses and practical learning experiences designed to develop entrepreneurial and financial competencies. However, there is limited empirical evidence on whether these programme components have effectively influenced students' entrepreneurial mindset and financial acumen. This lack of programme-specific evidence makes it difficult for curriculum developers, lecturers, university administrators, and other stakeholders to determine whether the programme's intended learning outcomes are being achieved or whether aspects of the curriculum require strengthening.

Final-year Business Education students constitute the most appropriate population for this investigation because they have completed, or are in the process of completing, virtually all the core courses, entrepreneurship modules, teaching practice, industrial training, and other practical components prescribed in the curriculum. Consequently, they are in the best position to reflect the cumulative influence of the Business Education programme on the development of entrepreneurial mindset and financial acumen. Assessing students at earlier levels may not provide an accurate evaluation of programme outcomes because they would not yet have been exposed to the full range of learning experiences embedded in the curriculum.

Therefore, the problem addressed by this study is the absence of empirical evidence on the extent to which the Business Education programme at Lagos State University influences the entrepreneurial mindset and financial acumen of its final-year undergraduate students. Addressing this gap will provide programme-specific evidence to evaluate the curriculum's effectiveness. It will offer useful insights for curriculum review, instructional improvement, and policy decisions aimed at strengthening the entrepreneurial and financial competencies of Business Education graduates.

Objective of the Study

The main objective of this study is to examine the influence of Business Education programmes on the entrepreneurial mindset and financial acumen of final-year undergraduates at Lagos State University. In line with the main objective, the study specifically seeks to:

1. Examine the influence of Business Education programmes on the development of entrepreneurial mindset among final-year undergraduates at Lagos State University.
2. Determine the influence of Business Education programmes on the financial acumen of final-year undergraduates at Lagos State University.

Research Questions

1. To what extent does the Business Education programme influence the entrepreneurial mindset of final-year undergraduates at Lagos State University?
2. To what extent does the Business Education programme enhance the financial acumen of final-year undergraduate students at Lagos State University?

Research Hypotheses

1. **H₀₁:** The Business Education programme has no significant influence on the entrepreneurial mindset of final-year undergraduates at Lagos State University.
2. **H₀₂:** The Business Education programme has no significant influence on the financial acumen of final-year undergraduates at Lagos State University.

Scope of the Study

This study examines the influence of Business Education programmes on the entrepreneurial mindset and financial acumen of final-year undergraduate students in the Department of Business Education at Lagos State University during the **2025/2026 academic session**. The study focuses on entrepreneurial mindset, measured in terms of opportunity recognition, creativity, innovation, resilience, and calculated risk-taking, and financial acumen, measured

in terms of financial knowledge, budgeting, resource management, and financial decision-making.

The study is limited to final-year students because they have completed or are completing the core courses and practical components of the Business Education programme, making them the most appropriate group for assessing its impact. Geographically, the study is restricted to Lagos State University in Lagos State, Nigeria, and excludes students at other levels, departments, and universities, as well as programme graduates.

Theoretical Framework

Social Cognitive Theory

This study is anchored on the **Social Cognitive Theory (SCT)** developed by **Albert Bandura (1986)**. The theory explains that learning is a dynamic process resulting from the reciprocal interaction among personal factors (such as beliefs, attitudes, and cognitive abilities), behavioural factors, and environmental influences. Bandura described this interaction as **reciprocal determinism**, which suggests that an individual's behaviour is shaped not only by the environment but also by personal cognitive processes. In contrast, behaviour itself can influence both personal and environmental factors. Unlike traditional learning theories that emphasise direct reinforcement, Social Cognitive Theory posits that individuals learn by observing others, imitating behaviours, engaging in practical experiences, and evaluating the outcomes of their actions (Bandura, 1986).

A central construct of the theory is **self-efficacy**, defined as an individual's belief in their capability to organise and execute the actions required to achieve desired outcomes. According to Bandura (1997), individuals with high self-efficacy are more likely to embrace challenges, persist in the face of obstacles, take calculated risks, and translate acquired knowledge into purposeful action. Self-efficacy develops through mastery experiences, observation of successful role models, verbal encouragement, and positive emotional experiences. Consequently, educational environments that provide opportunities for experiential learning, mentorship, collaborative activities, and practical application of knowledge are more likely to enhance learners' confidence and competence.

Social Cognitive Theory provides a strong theoretical foundation for this study because Business Education programmes constitute a structured learning environment through which students acquire entrepreneurial and financial competencies. The programme combines classroom instruction with practical activities, including entrepreneurship and accounting and finance courses, business simulations, teaching practice, industrial training, project-based learning, and interactions with lecturers and industry practitioners. These learning experiences expose students to entrepreneurial role models, encourage active participation, and provide opportunities to apply theoretical knowledge in practical situations. In line with Social Cognitive Theory, such educational experiences shape students' knowledge, attitudes, beliefs, and behaviours through continuous interaction with their learning environment.

The theory is particularly relevant to the development of an **entrepreneurial mindset**. Entrepreneurial mindset encompasses opportunity recognition, creativity, innovation, resilience, initiative, and calculated risk-taking. Social Cognitive Theory explains that these attributes develop as students observe entrepreneurial behaviours, participate in entrepreneurial activities, receive constructive feedback, and complete entrepreneurial tasks.

As students accumulate mastery experiences and their entrepreneurial self-efficacy increases, they become more confident in identifying business opportunities, solving business problems, initiating ventures, and persisting despite uncertainty. This enhanced self-efficacy strengthens their behavioural intention to engage in entrepreneurial activities and increases the likelihood of entrepreneurial action after graduation. Thus, the theory explains how Business Education programmes can influence the development of an entrepreneurial mindset through learning experiences that enhance students' confidence and entrepreneurial behaviour.

Social Cognitive Theory also explains the development of **financial acumen**. Financial acumen extends beyond theoretical knowledge of finance to include the ability to prepare budgets, interpret financial statements, manage financial resources, evaluate investment opportunities, and make informed financial decisions. According to the theory, these competencies are acquired through observational and experiential learning. Students develop financial capability by observing lecturers' demonstrations, analysing financial cases, participating in accounting and finance practical exercises, engaging in simulations, completing industrial training, and applying financial concepts to real-life situations. Repeated exposure to these learning experiences strengthens both financial knowledge and the confidence required to make sound financial decisions in entrepreneurial and organisational contexts.

The adoption of Social Cognitive Theory in this study is therefore justified because it provides a comprehensive explanation of how Business Education programmes, as the learning environment, influence students' entrepreneurial mindset and financial acumen through cognitive development, observational learning, experiential learning, and self-efficacy. The theory demonstrates that entrepreneurial and financial competencies are not acquired solely through classroom instruction but through continuous interaction between learners, their educational environment, and their behavioural experiences. It therefore provides an appropriate framework for explaining the influence of Business Education programmes on the entrepreneurial mindset and financial acumen of final-year undergraduate students at Lagos State University.

Conceptual Review

Concept of Business Education

Business Education is a specialised field that equips learners with the knowledge, practical skills, attitudes, values, and competencies required for effective participation in the business world. It integrates theoretical instruction with practical experiences in areas such as accounting, marketing, management, entrepreneurship, office technology, business communication, and finance. The primary objective of Business Education is to prepare individuals for gainful employment, self-employment, and lifelong career development while promoting economic productivity and national development. As a component of vocational and technical education, Business Education bridges the gap between classroom instruction and workplace expectations by producing graduates who possess both technical competence and entrepreneurial capability (Okolocha et al., 2024).

Brown and Nwaokokorom (2025) describe Business Education as an educational programme that develops employability skills, entrepreneurial competence, and managerial abilities required for effective participation in the contemporary business environment. Similarly, Ajoma (2021) maintains that Business Education prepares learners to become economically

independent by acquiring entrepreneurial knowledge and practical business skills. Aluwong (2020) further argues that the programme contributes to sustainable national development by producing graduates capable of creating employment opportunities rather than relying solely on paid employment. Business Education is multidimensional, encompassing several components that collectively enhance students' entrepreneurial and financial capabilities.

Business Knowledge: This dimension focuses on providing students with foundational knowledge of accounting, marketing, economics, management, commerce, business law, and office administration. Such knowledge enables learners to understand business operations, organisational processes, and the economic environment within which businesses function.

Entrepreneurship Education: Entrepreneurship education exposes students to enterprise creation, opportunity identification, innovation, business planning, feasibility analysis, and venture management. It develops entrepreneurial thinking and prepares graduates to identify and exploit business opportunities.

Practical and Experiential Learning: Business Education emphasises learning by doing through internships, industrial training, simulations, business plan competitions, case studies, and practical projects. Experiential learning enables students to apply classroom knowledge to real business situations, thereby improving competence and confidence.

Financial Literacy Education: Financial literacy is an integral component of Business Education, equipping learners with knowledge of budgeting, financial planning, record-keeping, investment analysis, cash flow management, and resource allocation. These competencies strengthen students' ability to make sound financial decisions.

Employability and Soft Skills Development: Business Education also develops communication, teamwork, leadership, critical thinking, problem-solving, adaptability, digital competence, and ethical decision-making. These competencies enhance graduates' employability and entrepreneurial effectiveness.

Collectively, these dimensions position Business Education as an instrument for developing an entrepreneurial mindset and financial acumen. Through its blend of theoretical knowledge and practical exposure, the programme prepares students to identify business opportunities, establish sustainable enterprises, manage financial resources effectively, and contribute to national economic development.

Concept of Entrepreneurial Mindset

Entrepreneurial mindset refers to a pattern of thinking, attitudes, beliefs, and behavioural tendencies that enable individuals to recognise opportunities, solve problems creatively, take calculated risks, and create value through entrepreneurial activities. It reflects an individual's readiness to initiate change, adapt to uncertainty, and pursue innovative solutions that generate economic and social value. Entrepreneurship scholars argue that an entrepreneurial mindset is not an innate characteristic but a competency that can be developed through education, training, and practical experience (Talukder et al., 2024).

Amaral et al., (2024) explain that an entrepreneurial mindset equips individuals to identify opportunities, evaluate alternatives, mobilise resources, and transform innovative ideas into viable business ventures. Within higher education, Business Education programmes are

expected to nurture this mindset by exposing students to entrepreneurship courses, business simulations, mentoring, and experiential learning.

Entrepreneurial mindset comprises several interrelated dimensions.

Creativity: the ability to generate original, useful, and practical ideas that address existing problems or satisfy market needs. Creative individuals think beyond conventional solutions and identify innovative ways to create value.

Opportunity Recognition: the ability to identify unmet customer needs, emerging market trends, and business gaps that can be turned into profitable ventures. This competency enables entrepreneurs to recognise possibilities before others do.

Risk-taking Propensity: Entrepreneurship involves uncertainty; therefore, successful entrepreneurs must be willing to take calculated risks after evaluating available information. Risk-taking does not imply reckless behaviour but rather informed decision-making under uncertain conditions.

Persistence (Resilience): Persistence refers to the determination to continue pursuing entrepreneurial goals despite failures, setbacks, financial constraints, or market challenges. Resilient entrepreneurs learn from failure and remain committed to achieving long-term objectives.

Innovation: Innovation involves introducing new products, services, processes, technologies, or business models that improve efficiency and create competitive advantage. Innovation enables entrepreneurs to respond effectively to changing customer preferences and market conditions.

These dimensions collectively determine the extent to which individuals possess an entrepreneurial mindset. In the context of this study, entrepreneurial mindset refers to the extent to which Business Education develops students' creativity, opportunity recognition, risk-taking ability, persistence, and innovation in support of successful entrepreneurial engagement.

Concept of Financial Acumen

Financial acumen refers to the ability to understand, interpret, analyse, and apply financial information to make effective personal and business decisions. It encompasses knowledge of financial concepts, analytical skills, and sound judgement required to plan, control, and manage financial resources efficiently. Financial acumen is regarded as a critical competency for entrepreneurs because business success depends not only on innovative ideas but also on prudent financial management (Wardana et al., 2023).

According to Anthonysamy et al. (2020), financially astute individuals can interpret financial information, evaluate investment alternatives, manage costs, allocate resources efficiently, and make decisions that promote organisational sustainability. Business Education contributes significantly to the development of financial acumen by exposing students to accounting principles, financial management, budgeting, business finance, and investment analysis.

Financial acumen comprises several important dimensions.

Budgeting: Budgeting is the process of planning expected income and expenditure over a specific period. It enables individuals to allocate resources efficiently, control spending, and achieve financial objectives.

Cost Control: Cost control involves monitoring organisational or personal expenditure to eliminate waste and improve financial efficiency. Effective cost management contributes to profitability and sustainability.

Financial Analysis: Financial analysis involves interpreting financial statements, ratios, and other financial information to evaluate performance, identify trends, and support strategic decision-making. Entrepreneurs with strong analytical skills are better equipped to make informed financial decisions.

Saving Behaviour: Saving refers to setting aside a portion of available income for future use, emergencies, or business expansion. It promotes financial security and provides capital for future investment opportunities.

Investment Decision-making: Investment involves evaluating alternative investment opportunities by considering expected returns, associated risks, liquidity, and long-term sustainability. Sound investment decisions contribute to wealth creation and business growth.

These dimensions collectively represent financial acumen in this study. Therefore, financial acumen is conceptualised as the ability of Business Education students to budget effectively, control costs, analyse financial information, cultivate sound saving habits, and make informed investment decisions that enhance entrepreneurial success and long-term financial sustainability.

Materials and Method

The study adopted a descriptive survey research design to examine the influence of Business Education programmes on the entrepreneurial mindset and financial acumen of final-year undergraduate students at Lagos State University. The population comprised all seventy-nine (79) final-year Business Education students. Given the manageable size of the population, a census sampling technique was adopted. Consequently, all 79 students were included in the study. A total of 79 questionnaires were administered, of which 71 were duly completed and found suitable for analysis, representing a response rate of 89.9%. Data were collected using a researcher-developed structured questionnaire comprising two sections. Section A elicited respondents' demographic information, while Section B contained items measuring Business Education programmes, entrepreneurial mindset, and financial acumen on a four-point Likert scale of Strongly Agree (4), Agree (3), Disagree (2), and Strongly Disagree (1). The instrument underwent face and content validation by experts in Business Education and Educational Measurement and Evaluation. Its reliability was established through a pilot study involving 40 final-year Business Education students from Lagos State University of Education (LASUED), who were excluded from the main study. Responses from the pilot study were analysed using Cronbach's Alpha, yielding an overall reliability coefficient of 0.75, indicating acceptable internal consistency. Data obtained from the 71 valid questionnaires were analysed using mean and standard deviation to answer the research questions. In contrast, a one-sample *t*-test was used to test the hypotheses at the 0.05 level of

significance. A criterion mean of 2.50 was adopted for decision-making, with mean scores of 2.50 and above interpreted as Agreed and below 2.50 as Disagreed.

Results and Discussion

Research Question 1: To what extent does the **Business Education programme** influence the entrepreneurial mindset of final-year undergraduates at **Lagos State University**?

Table 1: presents the various statements used to answer the research question.

S/N	STATEMENTS	SA	A	D	SD	Mean	S.D	Decision
1.	The Business Education programme has equipped me with practical business skills.	45	20	2	4	3.49	0.80	Agreed
2.	The courses offered in Business Education encourage entrepreneurial thinking	41	24	3	3	3.45	0.77	Agreed
3s	My programme provides adequate exposure to real-life business situations.	37	30	4	Nil	3.46	0.60	Agreed
4	The teaching methods used in the programme promote creativity and innovation	26	38	5	2	3.24	0.70	Agreed
5	The programme prepares students for self-employment opportunities.	30	33	5	3	3.27	0.77	Agreed
6	The programme has improved my understanding of business management	28	24	3	6	3.18	0.86	Agreed
7	Entrepreneurship courses in the programme inspire students to start businesses.	29	33	5	4	3.23	0.81	Agreed

Source: Field Survey (2026)

The findings in Table 1 indicate that respondents agreed that the Business Education programme positively influences students' entrepreneurial mindset. The results indicate that the programme equips students with practical business skills, encourages entrepreneurial thinking, and exposes them to real-life business situations. The respondents also agreed that the teaching methods used promote creativity and innovation, while the courses prepare students for self-employment and improve their understanding of business management. In addition, entrepreneurship courses were found to inspire students to consider starting their own businesses. These findings are consistent with previous studies which reported that entrepreneurship education enhances entrepreneurial mindset, skills, and career intentions among university students (Ogunsola, 2025; Wale-Oshinowo et al., 2019; Ojogbo, Idemobi & Ngige, 2018).

Research Question 2: To what extent does the Business Education programme influence the financial acumen of final-year undergraduates at Lagos State University?

Table 2 presents the various statements used to answer the research question.

S/N	STATEMENT	SA	A	D	SD	Mean	S.D	Decision
1.	I understand how to prepare a basic budget for a business.	25	28	10	8	2.99	0.98	Agreed
2.	I can interpret simple financial statements.	33	23	8	7	3.15	0.98	Agreed
3.	I understand the importance of managing business costs effectively.	31	24	7	9	3.08	1.03	Agreed
4.	I can make informed financial decisions for a business venture.	38	19	5	9	3.21	1.04	Agreed
5.	I understand the importance of saving and investment in business.	43	25	3	Nil	3.56	0.58	Agreed
6.	I can analyse financial information before making business decisions	28	21	9	13	2.90	1.12	Agreed
7.	I understand the concept of profit and loss in business operations.	39	26	6	Nil	3.46	0.65	Agreed

Source: Field Survey (2026)

The findings in Table 2 indicate that respondents generally agreed that the Business Education programme has enhanced their financial acumen. The mean scores ranged from **2.90** to **3.56**, all exceeding the criterion mean of 2.50, indicating agreement across all statements. Specifically, respondents agreed that the programme improved their ability to prepare business budgets, interpret financial statements, manage business costs, make informed financial decisions, understand the importance of saving and investment, analyse financial information before making business decisions, and understand the concept of profit and loss in business operations. These findings suggest that the Business Education programme has contributed to students' financial knowledge and decision-making skills. The findings are consistent with previous studies, which reported that Business Education enhances financial literacy, analytical competence, and entrepreneurial preparedness among undergraduates (Ibe & Okoro, 2020; Akande & Adewale, 2019; Ojo & Alabi, 2018).

Testing of Hypothesis

Table 3: Showing One-Sample t-Test Showing the Influence of Business Education Programme on the Entrepreneurial Mindset of Final-Year Undergraduates

Variable	N	T-Value	Mean	SD	Mean Difference	t-value	df	t-critical (a=0.05, one-tailed)	Decision
Entrepreneurial Mindset	71	2.50	3.32	0.78	0.82	8.86	70	1.667	Reject H_{01}

The analysis revealed that the Business Education programme has a statistically significant positive influence on the entrepreneurial mindset of final-year undergraduates at Lagos State University. The collective mean score of **3.32** was significantly higher than the criterion mean (test value) of **2.50**, with a calculated t-value of 8.86 and 70 degrees of freedom. Since the calculated t-value exceeded the critical value of **1.667** at the 0.05 level of significance, the null hypothesis was rejected. This finding indicates that students perceive the Business Education programme as effective in developing entrepreneurial thinking, creativity, innovation, practical business skills, and the confidence required for self-employment and venture creation. This finding is consistent with previous empirical studies, which have shown that entrepreneurship education significantly enhances students' entrepreneurial mindset, opportunity recognition, problem-solving abilities, and entrepreneurial intentions. For instance, Ogunsola (2025) reported that exposure to entrepreneurship-oriented curricula positively influences students' entrepreneurial competencies and self-employment aspirations. Similarly, Wale-Oshinowo et al. (2019) found that Business Education programmes equip undergraduates with the knowledge, skills, and attitudes required for entrepreneurial success. Likewise, Ojogbo, Idemobi, and Ngige (2018) concluded that entrepreneurship education fosters innovation, business confidence, and graduates' willingness to establish and manage business ventures.

Table 4: One-Sample t-Test Showing the Influence of the Business Education Programme on the Financial Acumen of Final-Year Undergraduates.

Variable	N	T-Valu	Mean	SD	Mean Difference	t-value	df	t-critical (a=0.05, one-tailed)	Decision
Entrepreneurial Mindset	71	2.50	2.87	0.97	0.37	3.21	70	1.667	Reject H_0

The analysis shows that the Business Education programme has a significant positive influence on the financial acumen of final-year undergraduates at Lagos State University. The overall mean of 2.87 ($t = 3.21$, $df = 70$) is above the neutral midpoint of 2.5, indicating that students generally agree that the programme improves their ability to identify business opportunities, solve problems creatively, make informed financial decisions, and view entrepreneurship as a viable career. Lower scores in risk-taking and persistence suggest these areas may need further emphasis. These findings are supported by empirical studies showing that financial and entrepreneurship education enhances students' financial literacy, decision-making, and entrepreneurial readiness (Adebayo, 2021; Nwankwo, 2019; Adeyemi & Ojo, 2018).

Conclusion and Recommendations

Based on the findings of this study, the following recommendations are made:

1. The management of Lagos State-owned universities should strengthen the implementation of the Business Education curriculum by incorporating more practical and experiential learning activities, such as business simulations, internships, industrial attachments, and entrepreneurship projects, to enhance students' entrepreneurial competence and workplace readiness.

2. Business Education lecturers and schools should adopt innovative learner-centred instructional strategies, including case studies, problem-based learning, project-based learning, and collaborative learning, to improve students' entrepreneurial mindset, creativity, critical thinking, and problem-solving abilities.
3. Great emphasis should be placed on financial literacy education within the Business Education curriculum through practical instruction in budgeting, financial planning, investment analysis, bookkeeping, and financial decision-making, thereby strengthening students' financial acumen and their ability to manage business resources effectively.
4. Universities should implement structured programmes to develop students' entrepreneurial resilience, risk-taking capacity, and persistence by organising regular business pitching competitions, mentorship programmes with successful entrepreneurs, start-up incubation initiatives, and failure-based learning activities that encourage students to learn from entrepreneurial challenges and setbacks.
5. Universities should establish and adequately equip entrepreneurship development centres and business incubation hubs to provide students with access to mentorship, business advisory services, networking opportunities, seed funding, and practical support to transform innovative business ideas into viable enterprises.
6. Government agencies, educational policymakers, and other relevant stakeholders should provide adequate funding, staff development opportunities, and modern instructional resources to support the effective implementation of Business Education programmes and strengthen the development of entrepreneurial competence and financial literacy among undergraduates in Lagos State-owned universities.

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THE EFFECTS OF ENTREPRENEURSHIP EDUCATION AND ENTREPRENEURSHIP SKILLS ON STUDENTS ENTREPRENEURIAL INTENTION OF POLYTECHNIC IN SOKOTO STATE

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Abstract

The aim of this study is to examine the effect of entrepreneurship education, entrepreneurship skills on students' entrepreneurial intention of polytechnics in Sokoto state. Data was compiled from students studying in six different colleges at the polytechnic, using cross-sectional research design. This study adopted cluster sampling and randomly selected 375 respondents and questionnaires were proportionately distributed and collected through personally administered method. SPSS V25 was used to analyze the data and regression was conducted. The results found significant positive impact to both Entrepreneurship education, entrepreneurship skills on students' entrepreneurial intention. It is expected that Entrepreneurship education and skills will enhance students' intention to be entrepreneur. The study contributes to the literature of entrepreneurship education, entrepreneurship skills and entrepreneurial intention of students particularly in the polytechnic, policy makers, and researchers with better understanding on the role entrepreneurship knowledge and skills as well as entrepreneurial intention for students.

Keywords: Entrepreneurial intention, Entrepreneurship education, Entrepreneurship skills, Students

Introduction

Since the Harvard Business School launched its first entrepreneurship course in 1947, programs in entrepreneurship education (EE) have expanded rapidly and throughout the world in higher education. (Brinckmann et al., 2010). This expansion is a result of growing awareness of the potential benefits that university-based EE programs, often known as EE programs, offer to foster a variety of possible entrepreneurial outcomes (Ubogu, 2020). For instance, improved student attitudes, knowledge, and abilities in venture development (Al-hattami et al., 2025) and graduate business start-ups and overall job creation (Anjum & Nazar, 2019; Yoon et al., 2011) ultimately contributing to economic growth and development (Mahayosnand, 2024).

More entrepreneurship, according to policymakers in the US and Europe, is necessary to achieve greater levels of innovation and economic growth. Empirical studies do, in fact, demonstrate a beneficial relationship between economic outcomes and entrepreneurship (Zatini & Porta, 2025). Policymakers also think that education can lead to higher levels of entrepreneurship (Olugbenga, 2012) and especially entrepreneurship education. Therefore,

such education is promoted and implemented into school curricula in many of the European member countries and the United States (Looi & Khoo-Lattimore, 2015).

Entrepreneurship education has become a serious matter for tertiary administrators, course developers, government servants, and researchers (Rauch & Willem, 2015). One reason for the increasing interest in entrepreneurship education is the impact of entrepreneurship on economic growth and employment (Zatini & Porta, 2025). The growing focus on entrepreneurial education has resulted in a wide variety of articles evaluating the impact of entrepreneurship education (Nabi et al., 2017; Rauch, 2012; Gabdeen & Raimi, 2012). While the effectiveness of entrepreneurship education has been questioned in theoretical literature (Nabi et al., 2017; Rodrigues et al., 2010), a recent study samples 768 (Looi & Khoo-Lattimore, 2015) found that entrepreneurial intention have great impacts on the economy of the country, and also the life of the citizens. It is achieved by generating employment that led to the empowerment of the people that in turn impact positively on the economy.

In Asian for instance, understanding the role of entrepreneurship toward economic development has been very clear to the government (Paray & Kumar, 2020; (Anjum & Nazar, 2019). For example, the government and all stakeholders are doing more to ensure they promote its conduct at all levels. These include the introduction of compulsory entrepreneurship program in tertiary institutions with the aim of producing and inculcating the culture and habit of becoming entrepreneurs. However, these programs failed be considered in African countries, particularly in Nigerian tertiary institutions. We are of the belief that most Nigerian students may possess the entrepreneurial abilities that may contribute to the nation's transformation agenda.

Statement of the Problems

In an economic context marked with rising unemployment, especially among young graduates, The majority of Nigerian entrepreneurial programs are restricted to students enrolled in degrees/diplomas relating to management, marketing, and business. But a significant issue with the students' wish to start their own business is that, as a result of the institutions' lack of emphasis on offering entrepreneurial programs to their students, there is a dearth of entrepreneurial orientation among them (Adeniyi et al., 2024; Paray & Kumar, 2020).

In view of the need to develop willingness and ability in the individual, undergraduates in tertiary institutions in Nigeria engage in both theoretical and practical entrepreneurship education in various vocations. The theoretical education includes topics on management, finance, business and innovation while the practical aspect covers several skills ranging from shoe making, catering services, hair dressing, website design, photography, videography, bead making, fashion and design and lots more (Akinola., et al., 2023). An individual chooses any of these vocations and undertakes training in it till graduation thus enabling the student to graduate in such a vocation as a specialist. Expectedly, most of the trainees develop quality interest in their vocations such that most of them begin to make products or render services from their vocation and sell even while in school (Ajoke et al., 2024).

On the other hand, entrepreneurship is even more relevant when supply of jobs in the labor market shrinks. Knowledge about entrepreneurship will be very useful when fresh graduates are unable to find their ideal jobs or retrenched when the economy slows down, forcing some

fresh graduates to turn to entrepreneurship. In the entrepreneurship literature, this is termed necessity entrepreneurship.

The entrepreneurial intention is one of the predictors of entrepreneurial propensity. Indeed, entrepreneurial intention is essentially determined by the entrepreneur's personal beliefs. Most of the studies on entrepreneurial intention are based on Ajzen's Theory of Planned Behavior (Ajzen, 1991). This theory provides a practical theoretical model that is applicable to intentional behavior given that it excludes external variables as immediate determinants of behavior (Teece, 2012).

Previous researchers have empirically examined entrepreneurship orientation and how it relates to entrepreneurial intention in Asian, by (Paray & Kumar, 2020; Kassim & Alshukaili, 2024), also, Al-hattami et al., (2025) examine the role entrepreneurship education in fostering innovation and new venture creation on the intention of students to become entrepreneurs. Rauch and Willem, (2015) study the entrepreneurial intention of students in USA. European and some part of African states, for example, Shah et al., (2020) investigate the role of entrepreneurship education in shaping entrepreneurial intentions among different higher education institution in Oman. Otache et al., (2021) assessed the effect of entrepreneurship education and teaching on entrepreneurial attitudes (attraction, social norm and received capacity) of 250 students from London and Grenoble universities. Therefore, enrichment the entrepreneurial act is of paramount importance for a country like Nigeria, particularly through guaranteeing job opportunities and creating wealth.

However, most of these studies were conducted in developed nations and developing countries, under business schools and private institutions and to date, there are no empirical studies on the effect of entrepreneurship education, entrepreneurship skills on entrepreneurial intention of tertiary institutions. Therefore, this study intends to fill the missing gap in existing literature concerning the impact of entrepreneurship education, entrepreneurship skills on entrepreneurship education and entrepreneurial intention of students in polytechnic settings to improve the level of self-employments after graduation among different higher institution in Sokoto State of Nigeria.

Therefore, based on the above gaps, the research questions of the study will focus on the following

- i. Is there any relationship between entrepreneurship education and entrepreneurial intention?
- ii. Is there any relationship between entrepreneurship skills and entrepreneurial intention?

To answers these research questions, this study will consider the following objectives

- i. To examine the relationship between entrepreneurship education and entrepreneurial intention.
- ii. To study the relationship between entrepreneurship skills and entrepreneurial intention.

Literature Review and Hypothesis Development

Entrepreneurial intention

The concept of entrepreneurial intention is defined by (Aladejebi, 2018a) as the mindsets that direct, guide, coordinate and control the basic concept (action) of new development, implementation and evaluation. Entrepreneurial intention as defined by Hernández-Perlines et

al., (2016) as the self-acknowledged conviction of the individual mind in the possibility of starting up a new business with a sincere and dedicated plan to so at a certain point of time. He went further to state that the concept of entrepreneurial intention helps in determining the strength of intention of starting up a new business. These are in line with the assumption of the Ajzen's theory that explains that the higher the intention, the higher the possibility of displaying the behavior (Ajzen, 1991). Therefore, studying the entrepreneurial intention clearly helps in understanding the antecedents that predict entrepreneurial intention (Paray & Kumar, 2020; Al-hattami et al., 2025; Kassim & Alshukaili, 2024; Zatini & Porta, 2025).

For example, (Al-hattami et al., 2025) study the entrepreneurial intention of students in Oman. The study was conducted using the theory of planned behavior using a sample of two different schools from the institution, this gives enough and robust possibility of comparing them in other to see the entrepreneurial intention of these different schools. The study shows that all the three factors identified by Ajzen's theory of planned behavior were found to be significant in terms of determining the entrepreneurial intention of the students. Shah et al., (2020) investigate the role of entrepreneurship education in shaping entrepreneurial intentions among different higher education institution in Oman, found that entrepreneurship education positive significant influence entrepreneurial intention of Oman Sultanate students. Entrepreneurship education improves the level of perceived self-efficacy and resultantly derives toward entrepreneurship intentions.

Entrepreneurial skills

The need for an entrepreneur to obtain or acquire certain skills for him/her to be successful cannot be over emphasized. According to Matlay, (2008) there is no consensus on what the definition of skill should be. In other words, researcher are yet to agree on a universal definition of skill (Mack et al., 2024) defined skill as the ability and capacity to do something. Ajoke et al., (2024) also defined skill as the knowledge that is best described by an action. The word "skill" is synonymous with any of the following words; "ability," "competence," "knack," "aptitude" and "talent" and its interpretation varies according to languages. Aladejebi, (2018b) described skill as the ability and the capacity to do things. Skill has been used in many different contexts and disciplines (Ana, 2023) such as entrepreneurship skill, teaching skill, football skill, etc. In entrepreneurship context, for example, skill has been identified as one of the most-important factors required to become entrepreneurs to be successful in their entrepreneurial practices, including those that have the intention to become entrepreneurs.

Many researchers have examined entrepreneurial skill and how it relates to entrepreneurial intention e.g. Mack et al., (2024) and Ubogu, (2020). For instance, the empirical study by Ibrahim and Lucky, (2014) investigates the relationship between entrepreneurial orientation, entrepreneurial skills, environmental factor and entrepreneurial intention among Nigerian students in Utara University Malaysia, the study found a moderate positive significant link between entrepreneurial orientation and entrepreneurial intention of Nigerian students. The study discovered that entrepreneurial skill is a significant factor of entrepreneurial intention. Thus, there is a strong relationship between entrepreneurial skills and entrepreneurial intention.

Moreover, the study conducted by (Al-hattami et al., 2025), on the role entrepreneurship education in fostering innovation and new venture creation on the intention of students to become entrepreneurs. competency of farm tourism with the aim of finding on how to

diversify the farm tourism in other to generate more incomes, as a result, of sustainability and diversification. The study discovered that the entrepreneurship education program being offered by the institution exert a significant effect on the tendency of the students to engage in future entrepreneurial intentions after graduation.

Entrepreneurship Education

UNESCO., (2006) defines entrepreneurship education as “a collection of formalized teachings that informs, trains, and educates anyone interested in participating in socioeconomic development through a project to promote entrepreneurship awareness, business creation, or small business development”. In order to foster a better understanding of the concept of entrepreneurship education.

The components of a good quality entrepreneurship education should comprise of theory and pedagogy with the specific aim of imparting and acquisition of skills by students and trainees in vocational education settings. According to Ana, (2023) suggests best practices for entrepreneurship education which are incorporated in pedagogy approaches and tools are meant to provide stakeholders, teachers and decision makers the framework on the principles and practice of entrepreneurship education for university students.

Even though entrepreneurship education has undergone rapid development, some related issues need to be further investigated and clarified, namely, the evaluation of entrepreneurship programs and trainings (Mahayosnand, 2024). The first studies dealing with the role of the educational system in developing entrepreneurship were initially suggested by Al-hattami et al., (2025). They investigated the effects of management trainings on new venture creation among American students. Research on the impact on entrepreneurial education on business creation process reached its peak during the 1990s. The impact of entrepreneurship teaching and training has become an important focus area for countries that sought to foster their students' entrepreneurial behavior through education. Yet, some problems have emerged as to what predictors to choose and how to measure them. In addition, a wide range of entrepreneurial activities and training were developed in higher education institutions (Amirbekova et al., 2025).

The purpose of such training sessions was to encourage everyone to launch his own business, but without expecting immediate results. The simplest and most evident indicators, though crucial, are not, generally, the most relevant. Evaluation should by no means be based solely on the number of firms set up by the trained people. According to Salau et al., (2024) education and training in the field of entrepreneurship do influence the students' actual behaviors and intentions. Yet, while business creation act cannot be the sole criterion to evaluate the impact of entrepreneurial education, it is more pertinent to take into account those criteria related to entrepreneurial intention.

In this respect, Otache et al., (2021) assessed the effect of entrepreneurship education and teaching on entrepreneurial attitudes (attraction, social norm and received capacity) as well as on the entrepreneurial intention of 250 students from London and Grenoble universities. The purpose of their study was to “test the impact of teaching entrepreneurship on attitudes (social standard, personal attitude and perceived capacity). They found that entrepreneurship courses helped further enhance these students' intentions to start up by promoting certain attitudes. Entrepreneurship and business creation have become topical concepts in several countries, including Nigerian. Recognized as vital issues, they occupy an increasingly critical place not

only in the local and national economic and business matters, but also in the educational institutions. In an economic context marked with rising unemployment, especially among young graduates, the enhancement of the entrepreneurial act is of paramount importance for a country like Nigeria, particularly through guaranteeing job opportunities and creating wealth.

From above literature review some following propositions/hypotheses are propose to examine Relationship between entrepreneurial education, entrepreneurial skills and entrepreneurial intention.

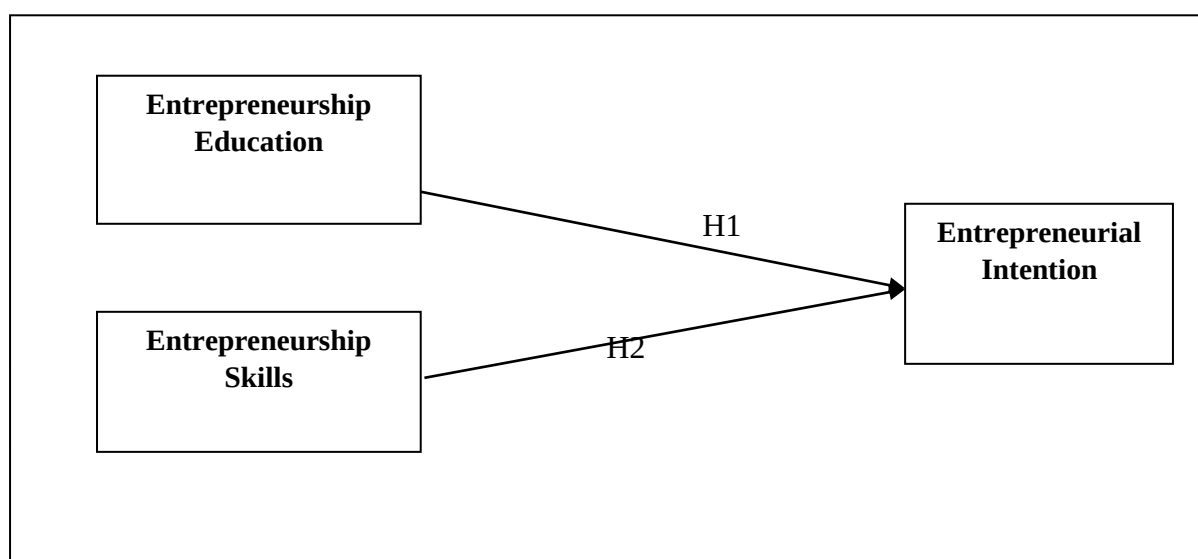
H₁. There is significant effect on the relationship between entrepreneurship education and entrepreneurial intention among Polytechnic students.

H₂. There is significant effect on the relationship between entrepreneurship skills and entrepreneurial intention among Polytechnic students.

Materials and Method

The Research Framework

In view of the number of literatures reviewed and suggestions filtered from many studies, this study has opted to work along one framework, which is to investigate the effect of entrepreneurship education, entrepreneurship skills on entrepreneurial intention of students in Polytechnic. The research framework has three variables as presented below; one dependent variable (Entrepreneurial Intention) two independent variable (Entrepreneurship Education, entrepreneurship skills). The conceptual framework for the study is shown.



between April and May 2024, individually, head of departments were involved in the data collection processes in each participant colleges and departments. The importance of this approach is that, the researcher has easy access to the respondents, which make it more economical and it takes little time to gather data. Data analysis was conducted with SPSS V25 using frequency and linear regression in in analyzing the variables used in the framework for testing hypothesis. Therefore, the main objective of the study is to examine the relationship between entrepreneurship education, entrepreneurship skills and entrepreneurial intention of students in Polytechnic. Descriptive research was used to highlight the characteristics of the population, like respondent, variability and characteristics of the

institutions; while hypotheses testing and correlation methods will be used to determine the relationship among the variables.

The population of the study were registered students in the Polytechnic of Sokoto state, the institution has 13,234 students across seven colleges, which, includes College of Administrative and Business Studies (7 departments), College of Agriculture Technology (2 departments), College of Art and Humanities (4 departments), College of Engineering (3 departments), College of Environment & Building Tech. (3 departments) and College of Science and Technology (4 departments). The sample of the study consisted of 375 out of which, 150 students from CABS, 35 students from COA, 25 students from CAH, 20 students from COEB, 45 students from COE and 100 from CST the sample size is consistent with table provided by (Sekaran & Bougie, 2013). The table is regarded as one of the best and most recent in the social science.

Results and Discussion

Demographic Characteristics

The total sample size for the study was 375 to be the respondents out of which 282 were received. Preliminary analysis of data coding and cleaning were conducted and 33 cases were deleted. The research is left with 249 cases (66%) which is sufficient for analysis. Out of the respondents 134 (53%) are male while 116 (47%) are female. Looking at the age of respondents 138 (55%) are ranging from 20-25, 75 (30%) are between 26-30 years, 29 (11%) are between 31-35 range, while 8 (3%) are on the age of 36 and above. In terms of program enrolment as drawn from the colleges, 161 (65%) are from social sciences (college of administrative and business and college of art and humanities). 89 (35%) of them are purely sciences (College of science and technology, engineering, environment technology and college of agriculture). Looking at the students' program level (ND I & II programs and HND I & II programs) 69 (28%) are ND levels, while, 180 (72%) are at HND levels. With regards to student occupation 26 (10%) are employed under private sector, 37 (15%) are employed under public sector, 127 (51%) and self-employed while 58 (23%) are not yet employed. In terms of student's interest employment 64 (26%) are interested in employment, 117 (46%) interested for self-employed experience, 57 (23%) interested for family role model, while 12 (4%) shown interest by contacting business center.

Table : Model Summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.491 ^a	.241	.235	.55797

a. Predictors: (Constant), ESK, EE

The table above presents the correlation coefficient ($R = 0.491$) indicating a positive relationship between the independent variables (EE and ESK and Entrepreneurial Intention (EIT). The coefficient of determination is ($R^2 = 0.24$) show that 24% of variation in EIT is explained by EE and ESK. Therefore, the remaining 75.9% is explained by other factors not included in the model. The Adjusted R^2 of 0.235 confirms that the model has reasonable explanatory power after adjusting for the number of predictors.

Table 2 ANOVA

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	24.294	2	12.147	39.017	.000 ^b
	Residual	76.588	246	.311		
	Total	100.882	248			

a. Dependent Variable: EIT

b. Predictors: (Constant), ESK, EE

In the table 2 ANOVA the result indicates that regression model is statistically significant (**F= 39.017, p<0.05**), which indicates that EE and ESK jointly have a significant effect on Entrepreneurial Intention. Therefore, the overall regression model is suitable for predicting Entrepreneurial Intention.

Table 3 Coefficients

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	3.447	.320		10.775	.000
	EE	.217	.052	.254	4.148	.000
	ESK	.260	.049	.326	5.310	.000

a. Dependent Variable: EIT

The study tests the relationship between EE, ESK and EIT of Sokoto Polytechnic students. The result of hypothesis is summarized in the Table 3 above (Coefficients) where H1: shows EE has a positive and significant effect on Entrepreneurial Intention (**$\beta = 0.254$, $p < 0.05$**). This indicates that A one-unite increase in EE leads to a 0.217- units increase in EIT, holding other variables constant. Hence, students who receive better EE are more likely to develop EIT. Also, the result of H2: ESK has a significant positive statistical effect on EIT with (**$\beta = 0.326$, $p < 0.05$**) which shows that A one-unit of ESK increases EIT by 0.260 units, controlling for EE.

To summarize the findings of this research, participation in entrepreneurship education offered in polytechnic has significant positive impact on entrepreneurial intention on both ND and HND students. Also, the results shows that entrepreneurship skills have better positive significant impact on the student's capacity to be entrepreneurs, considering the whole the regression model characterizing the entrepreneurship education and entrepreneurship skills explains variation in entrepreneurial intentions to the extent of 24% R-Square, which is not weak considering the difference in programs of study, where by majority of the students from social science, particularly those in business and management studies normally offers courses in entrepreneurship that generally foster business capabilities.

The findings reveal that 58% of the respondents are purely business and management-oriented students from one single college, on the other hand 42% of the respondents are purely sciences, who are not offering courses that are related to business and management studies such as (marketing, accounting human resources management and others). With regards to entrepreneurship skills both social science and science students undertake practical aspect at the entrepreneurship center which is effectively equipped with relevant resources to give the needed knowledge and skills to students experience real activities that are involved in business. Thus, little or practical training is given to students for becoming successful entrepreneurs. However, students from social sciences have an advantage over other science students when it comes to starting a new business or venturing into existing businesses.

Therefore, there is need to focus more on building and entrepreneurial skills, orientation, and culture and these should be incorporated with investment strategies in all field of educational study.

Discussions

The finding of this study indicates that the provision of entrepreneurship education and skills at Polytechnic Institutions does not conform what the literature recommends as best practice in entrepreneurship education. The study established that there is little intention from Polytechnic students to develop an entrepreneurial mindset and create an enterprise culture among them. However, students have little or no opportunity to virtually experience entrepreneurship because of their programs of study focus more on the theoretical aspects on the transfer of entrepreneurship knowledge than on the practical aspects. The programs (Art, science or social) should essentially make students more enterprising. Therefore, entrepreneurship education and skills, should build critical theoretical facts about entrepreneurship and equip students with the management, marketing and accounting skills imperative for an entrepreneurial career. Therefore, lecturers with business and management capabilities should teach students theory to supplement practical learning experience. In practice raising awareness of entrepreneurship can thus be achieved through teaching examples and by inviting entrepreneurs as guest lecturers. It can further be concluded that entrepreneurship is critical and practical aspects is imperative to enhance the intentionality of creating ventures.

The essence of introducing entrepreneurial educational programs to higher institution is to equip students with the basic skills and mindsets required to be successful entrepreneur from their early stage and continues students across all levels of education, the self-confidence and assurance required for launching a new business. It is clearly that Institution and social-economic contexts plays an important role in determining the entrepreneurial intention and achievement among students. Education transports the required knowledge and skills which is capable of turning students' entrepreneurial intentions to entrepreneurial activities. In implementing intention, students' attitude towards other people's resources and talents is important. Although participating in entrepreneurial education may not necessarily lead to entrepreneurial intentions, it has a way of motivating students in initiating entrepreneurial venture. Also, there is tendency that not all the students who had the intention to start entrepreneurial venture will end up as entrepreneurs. While these is beyond the scope of this research, understanding of the factors out-side the institution that can enhance students' entrepreneurial action is important for formulation of sound policies, strategies and initiatives in the study environment. The study therefore recommends that for entrepreneurship education to be actualized it is important that institutions should device a strategy to assist the students that indicated their intention to start enterprise while in school and after graduation through incubator program. This will help to encourage many students to be serious with their intention to be an entrepreneur.

Conclusion and Limitations

The findings of the study have established empirical evidence, that intention of students to be entrepreneurs depends on the effects of entrepreneurship education and entrepreneurship skills required to help polytechnic students, also highlights some research implication which includes theoretical and practical intention in an emerging economic context. The study shows that entrepreneurship education influenced over entrepreneurship skill to polytechnic

students' intention to become entrepreneurs in Nigeria, particularly in Sokoto state. The study also indicates there is a need to involve teachers with expertise/specialize in areas related to the entrepreneurship. In an environment where every graduate from (Art, social sciences and sciences) interested to work for public enterprises, therefore, there is a need in building equal students' intention irrespective of area of studies, the significant role of entrepreneurship developed and developing countries had influenced entrepreneurial intentions for both female and male to have equal mind-set and focus in developing and understanding how vital it is to be self-employed from any field of study.

The findings of this study are constrained with limitation and some of these limitations open up for new research in the area. The study shown new possibilities for research. students' intention for entrepreneur research is a new particularly, in an emerging economy like Nigeria, polytechnics in the Northern part of Nigeria, some African countries does not have real data set to understand the mental state of the people. The variables used in this paper are limited to entrepreneur education, skills and students' intention. The findings of this research are limited to Polytechnic, Sokoto. Recently, research in the entrepreneurial intention is new and very few in Nigeria, specifically in North Part of Nigeria. The results of the paper recommend for future study for better understanding entrepreneurship intention among different region in the country. Future can be conducted to measure the role of other variables and factors and their effect on entrepreneurial intention to start new business. The findings can be used as a blue print for policy makers in shaping the economic plan of the country. Finally, this can be used as methodology and curriculum for entrepreneurship education as a new guideline for entrepreneurship policy makers.

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EFFECT OF ENTREPRENEURIAL COMPETENCE ON ECONOMIC SUSTAINABILITY OF SMALL-SCALE FISH FARM BUSINESSES IN MINNA METROPOLIS, NIGER STATE

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Abstract

The challenge of sustaining business ventures amidst escalating economic uncertainty remains a primary concern in entrepreneurship, particularly for small-scale enterprises that often face stagnation or decline at the maturity stage. Specific studies on the relationship between entrepreneurial competence and economic sustainability of small businesses are limited in Nigeria and have not been intensively tested in the study's context and sector and as such this study investigated the effect of entrepreneurial competence on economic sustainability of small-scale fish farm businesses in Minna Metropolis, Niger State. Utilising a cross-sectional survey design, data were collected by issuing a structured questionnaire to 179 fish farmers in Minna Metropolis through a census-based sampling technique after which 165 valid questionnaires were retrieved. Hypotheses were tested using multiple linear regression analysis. The results yielded an R² of 0.505 indicating that the model possesses a robust fit and explains 50.5% of the variance in economic sustainability. The findings reveal that strategic competence with a coefficient of 0.192 and p-value of 0.020, opportunity competence with a coefficient of 0.238 and p-value of 0.001, and commitment competence with a coefficient of 0.295 and p-value of 0.000 exert positive and significant effects on economic sustainability; however, network competence with a coefficient of 0.008 and p-value of 0.896 was found to have a positive but statistically insignificant effect on economic sustainability. Consequently, it was recommended that the Niger State ministry of agriculture and rural development in partnership with cooperative associations of the fish farmers and academic institutions should institutionalise and implement continuous structured training and workshops to strengthen the strategic competence of fish farmers in various areas like financial literacy, planning and budgeting.

Key words: Commitment competence, economic sustainability, entrepreneurial competence, fish farming, opportunity competence.

Introduction

The ability to maintain and sustain business ventures that can withstand economic uncertainties, generate consistent income and contribute to national development remains a formidable challenge for entrepreneurs globally, particularly those within the Small and

Medium Enterprise (SME) sector. Entrepreneurship should transcend the mere establishment of enterprises and focus on ensuring continuity and growth which are the cornerstones of sustainable economic development. Recently, scholarly concern regarding the survival of businesses in a rapidly changing world has intensified (Kabii & Kinyua, 2023). In the face of escalating economic and competitive pressures, SMEs especially those in emerging nations frequently find themselves vulnerable (Ismail, 2022).

According to Imran *et al.* (2019), this vulnerability results in over 70% of SMEs failing to survive beyond their first five years. Furthermore, a significant majority of these enterprises either stagnate or liquidate upon reaching the maturity stage (Kwaku & Mawutor, 2016). These challenges are particularly pronounced in developing nations like Nigeria where limited resource access, inadequate infrastructure and volatile market conditions undermine the capacity of small-scale entrepreneurs to sustain operations. Iki and Otohile (2023) further note that despite various government supports including funding, training and policy interventions, most small firms in Nigeria continue to operate within the informal sector thus lacking formal sustainability frameworks.

Within the agricultural sector, small-scale fish farming has emerged as an important source of food security, employment, income generation and rural development in Nigeria. Despite the aquaculture advantages that Niger State has in terms of abundant inland water resources, many fish farm businesses in the state face sustainability challenges arising from rising feed costs, inadequate access to finance, poor infrastructure, disease outbreaks, technical inefficiencies and fluctuating market conditions. Sanusi and Danasabe (2015) in a study found that notable fish mortality and feed inefficiency among others are challenges faced by small-scale fish farming in Minna. Despite that fish farming has grown significantly in recent years in Minna, fish farmers continue to struggle with sustainability challenges that include inadequate pond management practices, seasonal water scarcity and limited business skills (Alhassan *et al.*, 2018). These challenges threaten the long-term viability and growth of fish farming businesses, thereby limiting their contribution to economic development and food security.

Modern business values have shifted as factors such as resource scarcity, pollution, climate change and a burgeoning global population have forced sustainability to the forefront (George *et al.*, 2018). Over-reliance on finite resources and the adverse environmental impacts of trade have necessitated a balance between social welfare, environmental preservation and economic progress (Pu *et al.*, 2024). Consequently, achieving sustainability across the triple bottom line of economic, social and environmental is now a core scientific and practical challenge (Fazal *et al.*, 2022). Failure to achieve this balance results in an increased social inequality, environmental degradation and systemic economic instability. To address these gaps, the Nigerian government has launched several initiatives aimed at strengthening capacity of individuals running businesses such as the Nigerian Youth Investment Fund (NYIF) in 2020, National Entrepreneurship and Innovation Plan (NEIP) in 2017, National Social Investment Programme (NSIP) in 2016 and Youth Enterprise with Innovation in Nigeria (YouWin) in 2011. However, the effectiveness of these programs often hinges on the individual entrepreneur's competence.

Consequently, business sustainability encompassing economic, social, and environmental impacts has emerged as a critical focal point in contemporary scientific research (Fazal *et al.*, 2022). To foster such sustainability, entrepreneurs must possess specific competence sets. Entrepreneurial competence comprises the relevant knowledge, attitudes and skills required

to achieve extraordinary outcomes and maximise profits while mitigating operational risks (Aidara *et al.*, 2021). Pratikto *et al.*, (2023) contended that these competencies are the most crucial factors for the continual growth, survival and success of any business organisation. Matthew *et al.* (2024) further emphasised that competence is a prerequisite for both the effective launch and the long-term management of a successful venture.

Statement of the Research Problem

In the contemporary macroeconomic landscape of Nigeria, the aquaculture sub-sector particularly small-scale fish farming is recognised as a vital pillar for food security, poverty alleviation, and localised economic resilience (Audu, 2024). However, the long-term sustainability of small-scale fish farm businesses in the Minna Metropolis of Niger State is severely threatened. Empirical observations and local agricultural assessments reveal a disproportionately high rate of early-stage liquidation, business closures, and operational failures among these agribusinesses within their first few years of establishment, preventing them from attaining organisational maturity (Kolawole-Jimoh, 2021; Sanusi & Danasabe, 2015). Conventional literature frequently blames external shocks such as volatile feed costs comprising over 60% of production cost, fingerling mortality from disease, and climate-induced flooding (Audu, 2024; Sanni, 2017). In contrast, closer scholarly inspection indicates that these systemic vulnerabilities are fundamentally exacerbated by deep-seated deficiencies in the human capital and entrepreneurial competencies of the farm operators.

Firstly, the prevalent operational collapse among small-scale fish farms in Minna is heavily tied to poor strategic planning. Many fish farmers manage their enterprises without long-term operational forecasts, structured financial records, or risk mitigation frameworks (Abdulkadir *et al.*, 2022). Consequently, when faced with extended aquaculture production cycles, fluctuating input costs, and macroeconomic shocks, they are unable to optimize resource allocation, balance production costs, or maintain profit margins sufficient to support business continuity. Secondly, there is a pronounced gap in weak opportunity recognition among local operators. Small-scale fish farmers in Minna consistently struggle to identify, evaluate, and exploit emerging market spaces, alternative cost-effective feed formulations, or innovative technical practices such as water re-circulation systems. This lack of entrepreneurial alertness locks farms into outdated and low-yield methodologies that leave them highly vulnerable to resource waste and environmental shifts (Kolawole-Jimoh, 2021).

Thirdly, the economic sustainability crisis is compounded by limited networks among fish farmers in the metropolis. Operating in isolation or participating only passively in fragmented agricultural cooperatives restricts their access to social capital, institutional credit, bulk-purchasing discounts for feeds, and direct-to-consumer market pathways (Kolawole-Jimoh, 2021; Sanusi, 2014). This lack of collaborative synergy diminishes their collective bargaining power, leaving them dependent on exploitative intermediaries and unable to pool resources to mitigate localised ecological shocks such as seasonal pond flooding (Dukiya, 2022). Finally, a deficit in low commitment capacity severely undermines the long-term viability of these farms. Aquaculture demands consistent and intensive care particularly during the delicate early stages of fingerling development to prevent fatal disease outbreaks (Sanusi, 2014). Many operators treat small-scale fish farming as a secondary part-time income source or lack the psychological resilience and long-term dedication required to navigate early losses. This absence of managerial grit and persistent oversight directly translates into high fingerling mortality rates, poor feed conversion efficiency, and eventual premature disinvestment.

Despite these evident vulnerabilities, there remains a distinct dearth of intensive empirical evidence within the Minna Metropolis of Niger State specifically regarding how small-scale aquaculture enterprises can leverage internal behavioral capabilities to overcome structural and ecological constraints. Prior studies have heavily focused on the bio-technical or macroeconomic determinants of fish farming (Gomna & Mamman, 2020). This study directly addresses this gap by empirically examining the effect of entrepreneurial competence deconstructed into strategic competence, opportunity competence, network competence, and commitment competence on the economic sustainability of small-scale fish farm businesses in the Minna Metropolis of Niger State. The study is structured starting from this introductory section, the remainder of this paper is organised as follows: The next section provides a literature review, exploring the conceptual, theoretical, and empirical foundations of entrepreneurial competence and economic sustainability. The methodology section follows detailing how the study was conducted to achieve the research aim. The fourth section presents the results and discussion where the findings were analysed in the context of existing literature. Finally, the study concludes with a summary of findings and offers recommendations for policy and practice.

Research Objectives

The main aim of the study was to examine the effect of entrepreneurial competence on economic sustainability of small-scale fish farm businesses in Minna Metropolis, Niger State. To achieve the aim, the following specific objectives were formulated to:

1. Examine the effect of strategic competence on economic sustainability of small-scale fish farm businesses in Minna Metropolis, Niger State.
2. Examine the effect of opportunity competence on economic sustainability of small-scale fish farm businesses in Minna Metropolis, Niger State.
3. Examine the effect of network competence on economic sustainability of small-scale fish farm businesses in Minna Metropolis, Niger State.
4. Examine the effect of commitment competence on economic sustainability of small-scale fish farm businesses in Minna Metropolis, Niger State.

Research Hypotheses

To achieve the research objectives, the following hypotheses were formulated and tested.

- H₀₁: There is no significant effect of strategic competence on economic sustainability of small-scale fish farm businesses in Minna Metropolis, Niger State.
- H₀₂: Opportunity competence does not have a significant effect on economic sustainability of small-scale fish farm businesses in Minna Metropolis, Niger State.
- H₀₃: Network competence has no significant effect on economic sustainability of small-scale fish farm businesses in Minna Metropolis, Niger State.
- H₀₄: Commitment competence does not have a significant effect on economic sustainability of small-scale fish farm businesses in Minna Metropolis, Niger State.

Literature Review

Conceptual Review

The variables of the study and their dimensions are conceptually reviewed below:

Entrepreneurial competence

Competence is defined as a synergistic combination of knowledge, abilities and attitudes that complement one another to offer value which are essential for the effective completion of tasks and achieving certain goals (Moreira and Rodrigues, 2023). Entrepreneurial competence is a multifaceted construct that transcends mere technical skill. Within the context of business leadership, Catacutan *et al.*, (2024) perceive these competencies as inherent personal traits including specific attitudes and actions that directly facilitate commercial success. Furthermore, Novojen and Birnaz (2019) described entrepreneurial competencies as the comprehensive set of mindsets and capabilities required to strategically plan, organise and oversee a commercial endeavor while navigating its associated risks. This strategic perspective is echoed by Javed *et al.*, (2016) who define the construct as a composite of essential attributes including motivations, values, social networks, self-image and beliefs that affect an entrepreneur's capacity to carry out business operations in the most strategic manner.

Strategic Competence

Strategic competence is the analytical capacity to interpret market trends and competitive dynamics to align daily operations with long-term strategic intent (Marei *et al.*, 2023). Fundamentally, it involves the ability to create, access, and rigorously execute a comprehensive business plan while mitigating future structural risks (Pepple & Enuoh, 2020). In aquaculture, this competence is critical due to the asymmetrical cash-flow timeline and high upfront capital requirements of production cycles. A typical catfish or tilapia production cycle requires continuous capital outlay for high-protein feeds and water management for 4 to 6 months before generating revenue. Operators possessing strategic planning competence can calculate input-to-output ratios, project feed requirements across growth stages, and implement risk-hedging mechanisms like staggered stocking. According to Lee and Park (2020), this competence is the most practical and successful means of gaining a long-term sustainable competitive advantage from a corporate perspective. Without this competence, fish farmers face mid-cycle liquidity crises forcing premature harvests or stock starvation, culminating in stunted growth, cannibalism, and total financial collapse.

Opportunity Competence

Opportunity competence is the cognitive ability to perceive, discover, and develop market possibilities through diverse mechanisms independent of currently controlled resources (Gur *et al.*, 2020; Schmitt *et al.*, 2018). It is a continuous process of recognising profit potential and taking calculated risks to turn perceived possibilities into favorable commercial outcomes (Akhigbe & Onuoha, 2020; Gaglio, 2018). In the fish farming sector, this competence is vital due to volatile input markets and escalating feed prices which account for 60% to 70% of production costs in Nigeria. An operator with high opportunity recognition does not remain passive amid price hikes. Instead, they identify and pivot toward cost-saving innovations such as formulating local alternative high-protein feeds or adopting water-saving recirculating aquaculture systems. Furthermore, it enables farmers to exploit underserved market niches such as selling processed or smoked fish directly to urban hospitality chains rather than relying on exploitative farm-gate middlemen. Lans *et al.* (2014) believed that that in order for sustainable entrepreneurs to see sustainability as a business opportunity, they needed to have better opportunities to detect, identify and develop talents in addition to having higher levels of income-generating opportunity search and evaluation capabilities.

Network Competence

Network competence is an entrepreneur's capacity to initiate, cultivate, and leverage external social networks to obtain guidance, assistance, and expert resources from diverse stakeholders (Podmetina *et al.*, 2018; Torkkeli *et al.*, 2019). It demands proficiency in interpersonal communication, persuasion, and long-term relationship preservation (Mathenge *et al.*, 2023). Businesses most especially small ones are aware that operating as an isolated entity would be challenging for them to grow and survive (Rashid & Ratten, 2021). For small-scale fish farming, networking is a critical survival mechanism due to fragmented aquaculture value chains and a lack of formal institutional credit. Because small-scale farmers often lack traditional collateral, strong social capital through clusters and cooperatives serves as a surrogate credit facility. Cultivating robust networks allows farmers to execute bulk-purchasing of premium feeds at discounted prices, share expensive technical equipments, and pool production volumes to fulfill large-scale institutional contracts. Furthermore, networked farmers benefit from collaborative support systems and informal early-warning networks to mitigate localized ecological shocks like seasonal pond flooding. Networking with other parties such as customers, suppliers and government agencies provides useful resources in terms of information for the firms to develop their new, unique and differentiated products in order to achieve competitive advantage in the markets (Tehseen & Sajilan, 2016).

Commitment Competence

Commitment competence is the internal force and motivational engine that binds an entrepreneur to a target-relevant course of action, driving the proactive persistence and unwavering devotion required to advance a firm (Jahromi *et al.*, 2020; Rahman *et al.*, 2024). It empowers entrepreneurs to act decisively with personal initiative before being compelled by external circumstances (Almeida & Buzady, 2019). Within fish farming, commitment matters profoundly due to the extreme biological fragility and environmental sensitivity of the business. Fish are highly sensitive to stress and minor lapses in dissolved oxygen levels or biosecurity can result in total stock mortality within hours. Maintaining drive and persistence which are highly regarded by entrepreneurs in many market places requires commitment competency (Bolzani & Luppi, 2021). Commitment capacity translates directly into strict managerial discipline ensuring consistent water quality monitoring and meticulous daily feeding schedules. Moreover, farmers with high commitment possess the psychological stamina and operational grit to absorb early losses, re-strategise, and reinvest in subsequent production cycles rather than prematurely abandoning the business at the first wave of financial or biological adversity.

Sustainability

Sustainability is a multi-dimensional concept that emphasises meeting current needs without compromising the ability of future generations to satisfy their own (Kaigama, 2023). In a corporate context, it involves developing business strategies that satisfy stakeholder's requirements while simultaneously conserving and enhancing human and natural resources for future use (Ismail, 2022). From an operational perspective, sustainability refers to a firm's capacity to remain in operation over an extended period through stable financial performance and administrative procedures that optimise productivity and profitability (Endiana *et al.*, 2020). The primary focus of this study is economic sustainability which centers on long-term resource conservation and value creation (Ruggerio, 2021). According to van Van Niekerk

(2020), economic sustainability is the process of using resources to satisfy current demands without compromising the ability of future generations to satisfy their own. This approach promotes sustained economic growth while ensuring that business activities do not exert a detrimental impact on the social, environmental, or cultural fabric of the community. Effectively, economic sustainability ensures financial viability through the efficient use of resources allowing a business to remain resilient and productive across generations. Businesses can only be considered economically sustainable if they can grow or maintain their operation's value or efficiency without endangering the economic stability of the communities in which they operate (Correia, 2019). Arora *et al.* (2018) is of the view that utilising resources to meet present demands while protecting and if feasible, improving the natural resource base for future generations is what is meant by economic sustainability. Economic sustainability guarantees that the economy supports future generation's well-being and fosters intergenerational justice (Abramovich & Vasiliu, 2023).

Conceptual Framework of the Study

Figure 1 below exemplifies the conceptual framework of the study revealing the interrelationship between variables of the study.

ENTREPRENEURIAL COMPETENCE

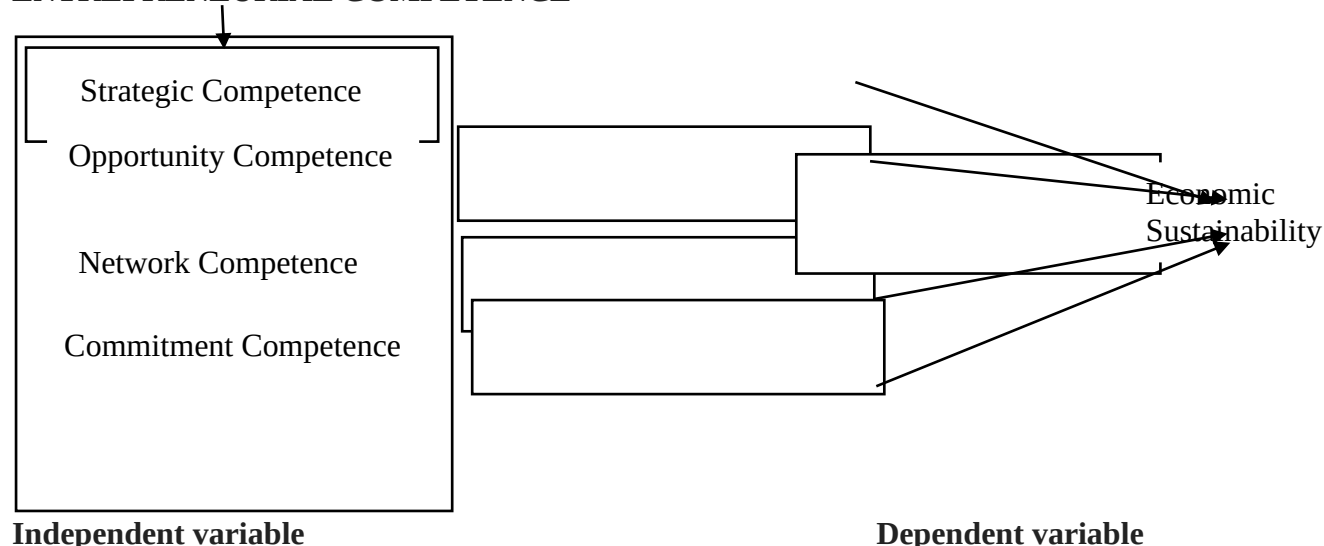


Figure 1: Conceptual Framework

Source: Author, 2025

Theoretical Framework

This study is anchored on the Resource-Based Theory (RBT) originally conceptualised by Barney (1991) and expanded by Wernerfelt (1984). According to Utami & Alamanos (2022), RBT is a dominant strategic management framework utilised to identify how an enterprise can configure its internal resource base to establish a sustainable competitive edge and secure long-term organisational longevity. The core thesis of RBT posits that firms can outperform rivals and survive turbulent environments not merely by reacting to external market forces, but by developing and deploying internal resources that are Valuable, Rare, Inimitable, and Non-substitutable (VRIN). The integration of Resource-Based Theory (RBT) into small-scale aquaculture establishes that long-term business sustainability in the face of macroeconomic

and ecological shocks depends on configuring internal, intangible human capital into a competitive buffer (Barney, 1991; Wernerfelt, 1984).

Deconstructed through the VRIN framework, strategic planning competence acts as a valuable resource by enabling operators to project long-term feed requirements across asymmetrical production cycles, thereby mitigating the risk of mid-cycle liquidity crises (Kozlenkova *et al.*, 2014). Conversely, opportunity competence serves as a rare capability among local fish farmers allowing alert operators to exploit underserved market niches and pivot toward cost-saving innovations like alternative high-protein feeds or water-saving technical systems to offset escalating input prices. Furthermore, network competence leverages social complexity and historical path-dependency to yield an inimitable resource; the trust-based social capital built within local cooperatives grants exclusive bulk-purchasing discounts and collective risk-sharing that rivals cannot easily buy or replicate (Mitchellmore & Rowley, 2010; Podmetina *et al.*, 2018). Finally, commitment competence provides an entirely non-substitutable psychological engine of operational grit and strict daily biosecurity oversight, a factor essential to preventing catastrophic stock mortality from water or disease stress that no amount of automated hardware or physical capital can replace (Jahromi *et al.*, 2020).

Empirical Review

Strategic competence and economic sustainability

Empirical scholarship examining the interface between strategic competence and organisational sustainability yields mixed results, clouded by conceptual fragmentation and methodological limitations. On one hand, regional evidence from sub-Saharan Africa strongly supports a direct, positive relationship; for instance, Aruoriwo-Oghene and Christabel (2024) in Nigeria and Kananu and Mutiso (2018) in Kenya established that strategic competency significantly drives the long-term sustainability of manufacturing and small enterprises by enabling owners to execute vision-driven market positioning. This aligns with broader global findings by Suleiman and Kurniawati (2023a) in Indonesia who demonstrated that strategic-action capabilities are vital components of sustainable entrepreneurship. Conversely, global literature highlights structural inconsistencies; Tehseen *et al.* (2019) discovered no direct link between strategic competence and business growth in Malaysia, noting instead that its value is entirely dependent on the mediating role of network competence, while Garlet *et al.* (2024) successfully validated a strategic planning instrument in Brazil but failed to offer actionable operational recommendations.

Opportunity competence and economic sustainability

The empirical relationship between an entrepreneur's opportunity recognition competence often operationalised alongside risk-taking and innovation and long-term business sustainability shows a strongly positive and globally consistent trend. In Asian Micro, Small and Medium Enterprises (MSME) hubs, foundational research by Velmurugan *et al.*, (2023) and Jegadeeswari *et al.*, (2020) in Coimbatore, India, consistently identified opportunity identification as a key behavioral trait that dictates organisational survival and long-term financial stability. These findings align with broader geographic evidence from West Africa and Southeast Asia. Diabate *et al.* (2019) verified that opportunity detection abilities directly accelerate the sustainable growth of Ivorian small firms, while Amornpinyo (2018) utilised

structural equation modeling in Thailand to confirm that opportunity competency serves as an essential structural component within the broader architecture of small business success.

Network competence and economic sustainability

The empirical literature exploring the relationship between network competence and business sustainability presents a mix of significant regional validation and notable global inconsistencies. Within the sub-Saharan African context, several studies demonstrate a strong positive correlation. Aga (2024) utilised the RBT in Benue State, Nigeria, to reveal that networking competence significantly drives the competitiveness and responsiveness of manufacturing SMEs. This aligns with the findings of Achama and Wegwu (2023) in Rivers State, who applied social capital theory to demonstrate that specific networking dimensions, such as coordination and relationship skills, directly enhance the operational efficiency and profitability of local firms. Furthermore, Jean-Marie *et al.* (2023) confirmed that networking skills are critical baseline requirements for the long-term survival and growth of small businesses in the Johannesburg Metropolis, South Africa. In contrast to these positive African contexts, global evidence reveals structural variations; Nur and Rodiah (2022) employed structural equation modeling (SEM) in Tangerang, Indonesia, and found that while innovation and leadership capabilities significantly secured business survival, network competence had a positive but statistically insignificant effect.

Commitment competence and economic sustainability

The empirical nexus between an entrepreneur's commitment competence and sustainability demonstrates compelling geographical trends but suffers from deep-seated methodological and theoretical limitations. In the broader Asian market, studies by Mokbel *et al.* (2024) and Fazal *et al.*, (2022) in Malaysia utilised variance-based structural equation modeling to confirm that commitment is a robust driver of sustainable performance and microenterprise survival with Mokbel *et al.* adding that its impact is significantly mediated by organisational innovation. This positive baseline is directly corroborated within the processing sector by Sulaeman and Kurniawati (2023b) in Indonesia who demonstrated that sustainable operational commitment directly enhances business continuity among fish processing owners. Conversely, domestic evidence reveals a stark contrast; Iki and Otoghile (2023) examined small firms in Lagos State, Nigeria using descriptive and regression statistics and found no statistically significant relationship between personal entrepreneurial characteristics like persistence or commitment to work contracts and business sustainability practices.

Materials and Methods

Research Design

The study adopted a cross-sectional survey design, a method that allows for the collection of data from a specific population at a single point in time to analyse the relationships between variables. This design was specifically chosen to determine the predictive effect of entrepreneurial competencies (independent variables) on the economic sustainability of small-scale fish farm businesses (the dependent variable).

Population and Sampling Technique

The target population comprised individual entrepreneurs who independently own and operate small-scale fish farm businesses in Minna Metropolis, Niger State. The sampling

frame was drawn from two cooperative associations in Minna Metropolis: the Happy Day Fish Farmers Association and the Lawu Hills Fish Farmers Association totaling 179 registered fish farmers. These two associations were used because they are duly registered with Corporate Affairs Commission (CAC) in Niger State and they regularly update their membership lists. Given that the population size was manageable and accessible, the study utilised a Census-Based Sampling Technique (CBST). By including the entire population in the data collection process, the study ensures high accuracy, eliminates sampling error and provides an equitable representation of the population. This approach aligns with the recommendation of Israel (1992) who advocated for the census method when the population is small and accessible as it maximises the reliability and validity of the research findings.

Variables Measurement

The research instrument which was a closed-ended structured questionnaire consisted of statement items adapted from established scales and supplemented by original items to ensure contextual relevance to the fish farming industry as shown in Table 1. All variables were measured using five Likert –scale.

Table 1: Variables Measurement

Variables	Number of items	Sources
Strategic competence	6	Adopted from Ahmad (2007) and Kananu and Mutiso (2018).
Opportunity competence	6	Reis <i>et al.</i> (2021) and Researcher's original items.
Network competence	6	Adopted from Ritter <i>et al.</i> (2002) and Kananu and Mutiso (2018).
Commitment competence	6	Ahmad <i>et al.</i> (2010) and Researcher's original items.
Economic sustainability	8	Sulaeman and Kurniawati (2023b) and Researcher's original items.

Source: Researcher's Computation (2025)

Validity and Reliability

To ensure the rigor of the instrument, all items underwent comprehensive psychometric testing prior to field administration. Face validity was first established followed by content validity using the Scale-Content Validity Index (S-CVI) as proposed by Lynn (1986) to ensure the items accurately represented the constructs. Internal consistency was verified using Cronbach's Alpha (CA), while Intraclass Correlation Coefficient (ICC) was employed to determine the test-retest. All the constructs demonstrated excellent reliability and validity as shown in Table 2.

Table 2: Reliability and Validity of Variables

Variable	CA	S-CVI	ICC
Strategic competence	0.803	0.87	0.712
Opportunity competence	0.764	0.85	0.743
Network competence	0.712	0.9	0.814
Commitment competence	0.761	0.86	0.786
Economic sustainability	0.782	0.92	0.752

Source: Researcher's Computation (2025)

Method of Data Analysis and Model Specification

Descriptive statistics was used to analysed the respondents demographic data while inferential statistics using multiple linear regression was employed achieve the research aim. Inferential statistics were conducted using 5% level of significance. The study employed one model: sustainability as dependent variable while strategic competence, opportunity competence, network competence and commitment competence serve as the independent variables. This Model is stated as follows which was adapted from Aga (2024).

$$Y = f (X_1, X_2, X_3, X_4) \quad (1)$$

Where:

Y = Dependent Variable of the study

X_1, X_2, X_3, X_4 = Independent variables of the study

Substituting the variable of this current study into equation 1 above, we have:

$$ES = f (Sc, Oc, Nc, Cc) \quad (2)$$

Econometrically, the model is expressed as follows:

$$ES = \beta_0 + \beta_1 Sc_i + \beta_2 Oc_i + \beta_3 Nc_i + \beta_4 Cc_i + \varepsilon$$

Where:

ES = Economic Sustainability of fish farm businesses

β_0 = constant term

$\beta_1, \beta_2, \beta_3$ and β_4 = Regression coefficients of the independent variables.

Sc = Strategic competence of fish farmers

Oc = Opportunity competence of fish farmers

Nc = Network competence of fish farmers

Cc = Commitment competence of fish farmers

ε = error term accounting for unexplained variability

The theoretical priori expectation states that the structural parameters representing the entrepreneurial competence dimensions will exert a positive effect on the dependent variable.

Results and Discussions

Response Rate

A total of 179 questionnaires were issued to fish farmers who runs small scale fish farm businesses in Minna Metropolis. 165 equivalent to 92 % were retrieved which were all valid while 14 equivalent to 8 % were not retrieved as shown in Table 3.

Table 3: Response Rate of Respondents

Items	Number	Percentage
Retrieved	165	92
UnRetrieved	14	8
Total	179	100

Source: Researcher's Computation (2025)

Demographic Characteristic of the respondents

Table 4 below presents the gender, marital status, highest educational qualification of the respondents and the location of fish farms of the respondents.

Table 4: Demographic Characteristics of Respondents

Variables	Responses	Frequency	Percentage (%)
Gender	Male	134	81.2
	Female	31	18.8
	Total	165	100
Marital status	Single	109	66.1
	Married	56	33.9
	Total	165	100
Highest educational qualification	Primary	16	9.7
	SSCE	19	11.5
	NCE/ND	32	19.4
	B.Sc/HND	75	45.5
	M.Sc	19	11.5
	Not applicable	4	2.4
	Total	165	100

Source: Author's Field Survey (2025)

Diagnostic Tests

Multi-collinearity and autocorrelation are the most emphasized assumptions of regression analysis. In using this analytical technique, it is assumed that there is no severe multicollinearity among the independent variables such that their effects do not overlap and that the dependent and independent variables are not auto correlated. Table 5 below presents the results of the tests of multi-collinearity and autocorrelation.

Table 5: Diagnostic Tests Results

Variables	Variance Inflation Factor	Tolerance
Strategic competence	3.066	0.326
Strategic competence	2.326	0.430
Strategic competence	1.948	0.513
Strategic competence	1.836	0.545
Durbin- Watson: 2.053		

Source: Researcher's Computation (2025)

Variance Inflation Factor (VIF) and tolerance level are usually employed to test for multi-collinearity while Durbin-Watson is used to test autocorrelation among independents and dependent variables. According to Bose and Kandaswamy (2021), VIF value of less than 10 and tolerance level above 0.10 indicate absence of multi-collinearity. Table 5 above indicated that none of the four dimensions of entrepreneurial competence have any collinearity with another dimension. Therefore, the predicting variables are sufficiently independent of one another without reasonable similarities and thus very suitable and reliable for regression analysis. Similarly, Durbin-Watson value of 2.053 revealed that the dependent and independent variables are not auto correlated indicating that there is no autocorrelation in the residuals of the regression model. It further established that errors across observations are not reasonably similar but random. Across the observations. The results from the multicollinearity and autocorrelation diagnostics confirm that the regression model meets key statistical assumptions. All predictors can be interpreted with confidence, and there is no evidence of redundancy or serial correlation among the variables.

Inferential Statistics

This section presents the results of the inferential statistical analyses conducted to achieve the study's aim. Moreover, the effects of the dimensions of entrepreneurial competence employed in the model were examined on the dependent variable. Table 6 below presents the result of the multiple linear regression analysis for the study.

Table 6: Multiple Linear Regression Results

Variables	Beta Coefficients	Standard. Error	T-values	P-values	Decision
Constant	.984	.252	3.902	.000	
SC	.192	.082	.229	.020	H ₀₁ Rejected
OC	.238	.072	.281	.001	H ₀₂ Rejected
NC	.008	.063	.010	.896	H ₀₃ Accepted
CC	.295	.074	300	.000	H ₀₄ Rejected

Source: Author's Field Survey (2025)

Results and Discussion

The results from Table 6 affirm that strategic competence of fish farmers positively and significantly affect economic sustainability of their fish farm businesses. Specifically, a unit change in strategic competence of the fish farmers will yield 0.192 change in economic sustainability of their businesses assuming all other variables remain constant. This is because strategic competence focuses on long-term planning, goals settings and proper efficient allocation of resources to achieve goals and visions of a business. The result confirms that fish farmers who set clear goals and develop long-term strategies are more likely to sustain their businesses economically. This result is in line with (Aruoriwo-oghene & Christabel, 2024; Kananu & Mutiso, 2018). The result is also in support of RBT which is of the opinion and believe that valuable, uncommon and unique internal resources like knowledge are crucial source of competitive advantage necessary for survival.

Table 6 also portrays that opportunity competence of fish farmers positively and significantly affect economic sustainability of their fish farm businesses. Specifically, a unit change in opportunity competence of the fish farmers will result to 0.238 change in economic sustainability of their fish farm businesses assuming all other variables remain constant. We are confident that opportunity competence has a meaningful and reliable positive effect on economic sustainability of fish farms in the study area. The result is in line with the priori expectation. The competence has a coefficient above strategic competence but below that of commitment competence. It can be asserted that opportunity competence has more effect than strategic competence on the sustainability of fish farms in the study area. This is because opportunity competence enable fish farmers to identify and seize business opportunities such as accessing a new market which can result to increased revenue and thus enhancing sustainability of their businesses. RBT is in support of this findings in the sense that competence in opportunity is a valuable, uncommon and un-rear resources and fish farmers can utilize the competence to access a new market earlier before others. This result is also in line with Diabate *et al.* (2019) who confirm an association between Ivorian SME sustainable growth and opportunity identification ability. Aga (2024) also found that opportunity competence had a significant and positive effect on the sustainability of SME in Benue State, Nigeria.

It additionally narrates that network competence of fish farmers had a positive but insignificant effect on economic sustainability of their fish farm businesses. Specifically, a unit change in network competence of fish farmers will lead to 0.008 change in economic sustainability of their fish farm businesses. However, we are not confident that the effect of the independent variable on economic sustainability is reliable and meaningful. This suggests that, within this context, building external relationships with suppliers or partners may not directly enhance the economic sustainability of the business, or its effect may be mediated through other factors. The reason for this insignificant effect might be due to limited dependence on formal networks and underdeveloped networking. Another possible reason might be that the farmers prefer to use their technical knowledge, experience and knowledge background rather than collaborating and networking with formal stakeholders for possible advice, guide and assistance. The result is in contrary with Achama and Wegwu (2023) and that of Aga (2024) as well. However, Nur and Rodiah (2022) also found similar finding to this result. The result however contradicts Competence Based Theory which advocated that capability should be matched with resources in order to achieve competitive advantage and sustainability.

It shows that commitment competence of fish farmers had a positive and significant effect on economic sustainability of their fish farm businesses. Specifically, a unit change in commitment competence of fish farmers will corresponds to 0.295 change in economic sustainability of their fish farming businesses providing all other variables remain constant. This finding underscores the importance of entrepreneurs being dedicated and persistent in achieving long-term business goals to enhance economic sustainability. This showcase that farmers who exhibit higher levels of commitment demonstrated by dedication, resilience and consistent efforts are more likely to sustain and grow their business. The result is in line with that of Fazal *et al.*, (2022) who found that commitment competence had a significant positive impact on sustainability of microenterprises in Malaysia. RBT also support this finding as commitment competence is an intangible resources that farmers can utilise to ensure both short and long-term goals are achieved thereby enhancing sustainability of their fish farming businesses.

Summary of Multiple Linear Regression Analysis Model

Table 7: Summary of Regression Model

R	R Square	Adjusted Square	R	R Change	F Change	Sig. F Change
.710 ^a	.505	.492		.505	40.751	.000

Source: Author's Field Survey (2025)

$P \leq 0.05$

- Predictors: (Constant), strategic competence, opportunity competence, network competence and commitment competence
- Dependent Variable: economic sustainability

The result from Table 7 reveals R value of 0.710 which suggests a strong positive correlation between the predictors and the dependent variable. The table further reveals R-square of 0.505, which implies that 50.5 % of variations that occur in economic sustainability were explained and predicted by the independent variables included in the model of the study while error term accounted for 49.5%. The F- value of 40.751 was significant at 0.000 $p \leq 0.05$. Thus, indicating that the model for the study has a good fit and is statistically significant.

Conclusion and Recommendations

The study examined the effect of entrepreneurial competence on the sustainability of fish farms in Minna metropolis, Niger State. The study employed a quantitative approach using cross-sectional design while structured questionnaire was used to collect data from the respondents. Data analysis was done using descriptive statistics while multiple linear regression was used to test the hypotheses. Drawing from the findings, the study concluded that entrepreneurial competence plays a vital role in fostering and enhancing sustainability of the fish farm businesses in the study context. Considering this, the following recommendations have been postulated:

1. The Niger State ministry of agriculture and rural development in partnership with the fisheries society of Nigeria and academic institutions should institutionalize continuous structured training and workshops to strengthen the strategic competence of fish farmers in various areas like financial literacy, planning and budgeting.
2. The cooperative associations should jointly establish a market intelligence unit that will be gathering, analyzing and disseminating vital information on innovation and opportunities for advancement, demand trends, input costs and government policies affecting aquaculture to their members during training sessions and sensitization.
3. The cooperative associations should reassess and strengthen the network competence of their members through structured engagements by fostering and enhancing an effective and purposeful collaboration among fish farmers. They should shift their focus from passive social associations to active commercial syndicates.
4. Fish farmers should treat small-scale aquaculture as a primary commercial enterprise requiring rigorous daily management, rather than a passive, part-time hobby. Management routines must enforce mandatory daily water-quality testing protocols and strict biosecurity measures.

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